

1 Introduction

■ Legislation

Legislation (HB 1141) passed by the 2006 Maryland General Assembly resulted in several significant changes to land use regulations controlled by Article 66B of the Annotated Code of the State of Maryland. New watershed-based planning requirements are among the more significant changes. Section 3.05 (a)(vi) of Article 66B of the Annotated Code of Maryland mandates that all Maryland counties and municipalities that exercise planning and zoning authority prepare and adopt a water resources element to their comprehensive plans. The legislation required the Water Resources Element (WRE) to be developed and adopted by all local governments on or before October 1, 2009. The legislation also provided for the granting of up to two six-month extensions of that deadline. Carroll County and all eight municipalities requested and were granted an extension of the deadline to April 1, 2010.

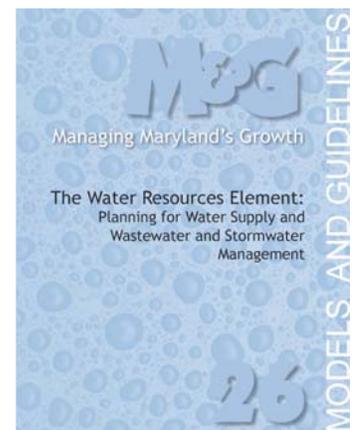
The purpose of the WRE is to ensure that future county and municipal comprehensive plans reflect the opportunities and limitations presented by local and regional water resources. WREs are intended to improve local jurisdictions' contribution to the protection of state land and water resources; to the protection of public health, safety and welfare; and to meet local and state smart growth policies.

■ Requirements

This WRE must address both water quantity and quality issues. Local jurisdictions must identify drinking water and other water resources needed to adequately address the needs of existing and future development proposed in the land use element of the plan. It also must identify suitable receiving waters (where stormwater and treated wastewater can be discharged) and land areas for NPS management and wastewater treatment. Pollutant loads from both stormwater and septic systems must be addressed. The WRE must indicate pollutant reductions, where needed, from both existing development and future growth. This legislation comes at a time when water quality and quantity planning is of utmost importance.

■ Models & Guidelines

The *Models and Guidelines* document was prepared by the Maryland Departments of Planning (MDP), Environment (MDE), and Natural Resources (DNR). Its purposes are to help local governments prepare the WRE in a manner that will not only meet the requirements of the law but will strengthen their planning efforts by ensuring that water resources will be adequate to support smart growth while meeting local economic, environmental and land use goals. The guidance document suggests assessments and methodologies to be used in completing the WRE plan document. Plans submitted to the State



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for review will be evaluated based on the inclusion of these components.

To achieve these purposes, planning must reflect the broader geographical context of watersheds. Successful WREs will be based on this perspective. The common goals for Maryland's water resources are reflected in the Chesapeake Bay Tributary Strategies, federal and state regulatory programs and smart growth policies.

■ Process

Carroll County and its municipalities worked collaboratively to develop one unified WRE document that can be adopted by all of Carroll County's jurisdictions to satisfy the requirements of HB 1141.

Since this process involved substantial technical information, a WRE Guidance Team was formed to discuss issues as they arise. This team included representatives of County staff, each municipality, the Carroll County Health Department, and the three relevant State agencies – MDE, MDP, and DNR. The Carroll County Water Resources Coordination Council served as the local body for guiding, directing, and reviewing the assessments and development of the plan document. All meetings of this group were open to the public. A WRE Work Group, consisting of the County and municipal representatives from the Water Resources Coordination Council (WRCC), met periodically to work through more specific issues related to data collection and technical background assessments.

The **Water Resources Coordination Council (WRCC)** was formed in March 2007 to serve as the lead intergovernmental agency for water resource planning, development, and protection in Carroll County. The Council consists of representatives from each of the municipalities, the County, and the Carroll County Health Department.

The WRE Work Group followed the Models and Guidelines (No. 26) developed jointly between MDE, MDP, and DNR for the development of this plan element.

The Group collected data on the current capacity of each community municipal water and wastewater system. This information helped identify additional capacity needs based on current and planned future demand/growth. If limitations were identified that could not be overcome, reductions in future demand were considered. The methodology and format for collecting this data were based on MDE's guidance documents for Water Supply Capacity Management Plans (2006) and Wastewater Capacity Management Plans (2006).

The County hired a consultant, Malcolm Pirnie, to provide technical assistance with several of the background assessments needed to inform decisions and develop strategies to be included in a plan element. The consultant provided a number of assessments/evaluations, including,

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- Updating the 1988 water study completed by RE Wright
- Completing a water balance assessment for each 8-digit watershed (water available for future consumption, from both groundwater and surface water sources)
- Assessing overall limitations of wastewater
- Evaluating options/alternatives for individual water and wastewater municipal systems as well as countywide
- Identifying strategies to address water and wastewater issues

Technical reports developed by Malcolm Pirnie and summarized in this plan document as needed and appropriate include the following:

- *Carroll County Water Demands and Availability, July 30, 2009*
- *Carroll County Wastewater Limitations, May 29, 2009*
- *Carroll County Alternatives Evaluation, September 28, 2009*

The nonpoint source (NPS) component of this plan addresses both stormwater and individual private septic systems. This component was completed by County staff. MDP and MDE provided a loading analysis model, the results of which are expected to be acceptable to the State. Recommended strategies needed to address the NPS contribution to or impact on impaired waters (303d), Total Maximum Daily Loads (TMDLs), Tier II waters (high quality), and Tributary Strategies, among other things.

The County participated in the Center for Watershed Protection's Builders for the Bay Better Site Design Standards assessment and consensus document. This project provided the stormwater programmatic assessment required in the WRE guidance document. The consensus document primarily provided recommendations for addressing impervious surfaces and reducing runoff. Many of the recommendations were implemented prior to completion of the draft WRE. Others will be incorporated into the County's comprehensive planning process.

Upon completion of these assessments, County and municipal staff worked together to draft the actual WRE plan document. The background assessments and resulting strategies for the WRE were based on **current conditions** – adopted plans, policies, and regulations in place at the time the assessments were completed and the plan was drafted. The assessments and strategies do not consider proposals or drafts **not** adopted at the time of the drafting of the WRE. However, recommendations to address or support some of the issues surrounding other proposals may be included in the strategies as appropriate.

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2 Vision

■ Vision

The land use and planned growth for the county and individual municipalities are balanced with and complementary to the water resources available in the county and the collective ability of all nine jurisdictions to maintain and protect water quality. Provision of public water supply and wastewater services continues to be concentrated in designated growth areas while protecting and preserving rural lands for continued agricultural use, open space, environmental protection, and recognition of the county's heritage.



■ Goals

- To restore water quality and protect it from pollution and encroachment
- To protect the habitat value of Carroll County's rivers, streams, and reservoirs
- To comply with applicable State and federal requirements related to water quality and quantity
- To maintain and protect adequate water supplies to serve current and planned population and development

3 Background

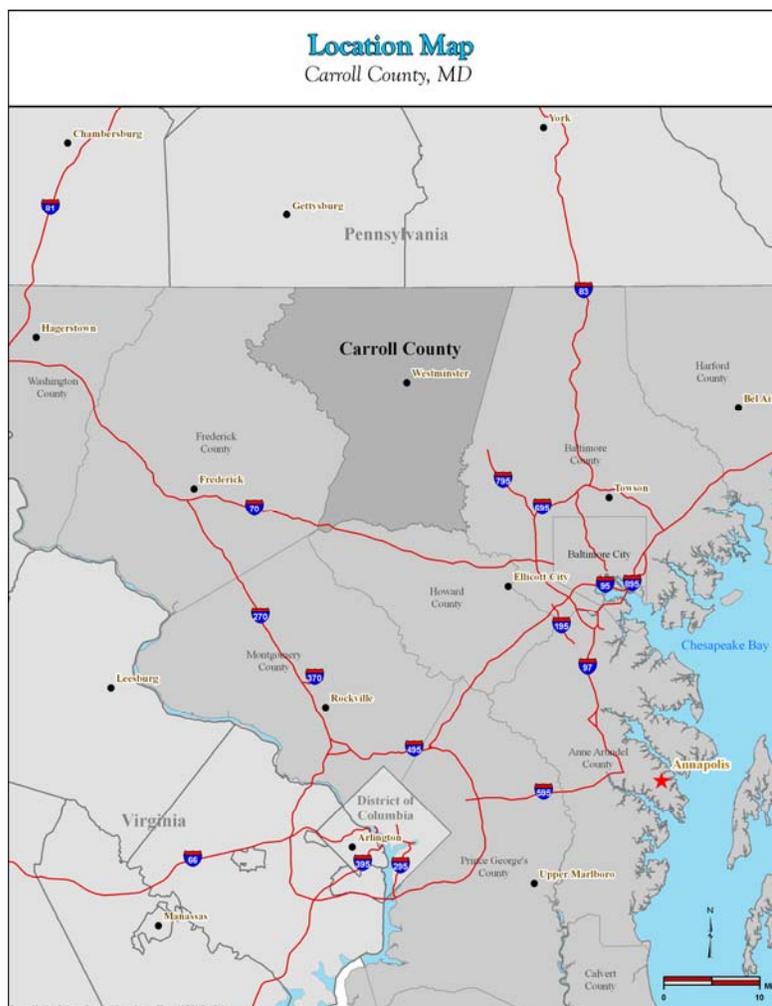
Eight municipalities reside within Carroll's borders – Hampstead, Manchester, Mount Airy, New Windsor, Sykesville, Taneytown, Union Bridge, and Westminster. All but Sykesville also own and operate their own water systems. All but Sykesville and Hampstead own and operate their own wastewater systems. The County provides public water and sewer service to Sykesville through the systems that serve the Freedom area. The County owns and operates the sewer system that serves Hampstead.

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In 2004, Carroll County adopted revisions to seven major environmental regulations to strengthen their implementation and impact on water resource and environmental protection. The stormwater management regulations were included. A Water Resource Management Ordinance was also adopted.

In the past decade, water quality and quantity issues have had a tremendous influence on growth and development policies. In the early part of the decade, many private wells and public water supplies were impacted due to drought conditions. These conditions brought about many changes to State policies and local development activity.

Three of Carroll County's municipalities – Mount Airy, Westminster, and Taneytown – entered into consent agreements with MDE to develop additional water supplies. Most of the county's public water supply systems have faced challenges of some sort conforming to State policies related to water quantity, which results in challenges to achieving Smart Growth.



■ Location

Carroll County is located in the Piedmont region of north-central Maryland, between Baltimore and Frederick Counties. Parr's Ridge, which runs roughly from Manchester to Mount Airy, diagonally divides Carroll County into two major drainage basins. Streams to the north and west drain into the Monocacy River and eventually the Potomac River. Streams to the south and east flow into the Patapsco and Gunpowder Rivers. The county is 289,678 acres in total size, or 452.6 square miles. See the "Location Map" for Carroll's location respective to the rest of the Baltimore metropolitan area.

■ Watersheds

At the most basic level a watershed is the total land area that drains surface water and/or groundwater into a common body of water. Because of the nature of gravity, watersheds (also known as drainage or catchment basins) are confined by their surrounding topography.

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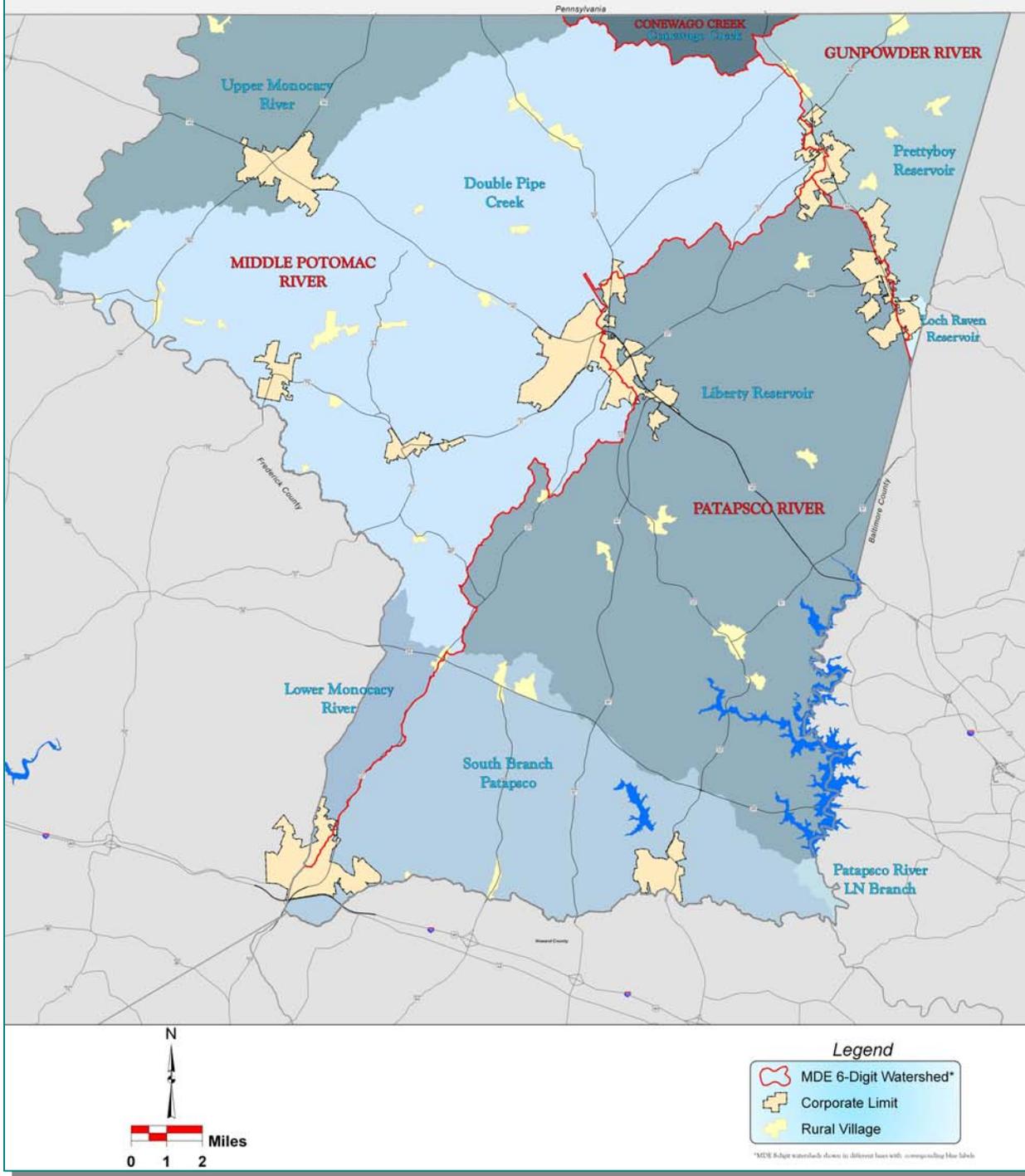
Water, both above and below ground, originates at the highest point and drains downhill to the lowest ground area. As one waterbody flows into another, the flows gradually increase in size. A small spring turns into a run and progressively merges with ever-larger creeks, streams, and rivers. Ultimately, these flows collect into the largest water bodies, such as the Chesapeake Bay, and eventually feed into the world's oceans.

Watersheds can be defined at many different scales. The United States Geological Survey (USGS) developed a ranked system for mapping all of the nation's watersheds. They are grouped from largest to smallest. These areas are called Hydrologic Units and are assigned a number known as a Hydrologic Unit Code (HUC) based on size. Currently, the most detailed level of nationwide drainage basin mapping available from the USGS is the 8-digit HUC. This plan will utilize this system of 8-digit watersheds.



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MDE's Watershed Boundaries in Carroll County, MD



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The political boundary of Carroll County includes lands which drain to nine different 8-digit watersheds. Two of these watersheds, Double Pipe Creek and Liberty Reservoir, cover most of Carroll County. Parr's Ridge, which is approximately followed by MD 27, is the east-west boundary between these two drainage basins. Their southern boundaries approximately follow MD 26. To the north, MD 30 roughly follows these watersheds' upper reaches.

The map titled "MDE 8-Digit Watershed Boundaries in Carroll County" depicts the nine watersheds found wholly or partially in Carroll County. Water throughout the county eventually flows to the Chesapeake Bay.

Following is a summary of the nine watersheds of Carroll County. The watersheds are listed from west to east beginning at the northernmost edge of the County. The information came from the MD DNR webpage titled "Maryland's Surf Your Watershed," which can be found at <http://www.dnr.state.md.us/watersheds/surf/index.html>.

Upper Monocacy River

This watershed is located in the northwestern-most portion of Carroll County and contains most of the City of Taneytown. The Monocacy River forms the border with Frederick County in this portion of Carroll and ultimately drains into the Potomac River. The majority of the 156,500 acres that bound this watershed are located in Frederick County (27,165 AC in Carroll). Roughly 57 percent of this watershed is used for agricultural purposes, such as dairy and cropland, and is the predominant land use.

Conewago Creek

This watershed abuts the Mason-Dixon Line in east central Carroll County, extending just east of MD 30 north of the village of Melrose. This watershed drains into the Susquehanna River. The vast majority of this watershed's lands are located in south central Pennsylvania, primarily York and Adams Counties. Only 3,431 acres of the watershed are within Carroll County. Approximately 55 percent of that land area is used for agriculture, and the remaining 30 percent is considered forested land.

Prettyboy Reservoir

This watershed is found in the northeast corner of Carroll County. It contains significant portions of both Manchester and Hampstead. It is considered to be part of the Upper Western Shore Tributary basin and drains to the Gunpowder River. The 46,576-acre land area of this watershed is predominantly divided between Carroll (21,030 AC) and Baltimore Counties, with a smaller portion in York County. About 45 percent of the watershed is located in Carroll County. Just over 10 percent of the total watershed area is classified as urbanized. Approximately 50 percent is devoted to agricultural purposes. Roughly 36 percent of the watershed retains its forest cover.

Double Pipe Creek

This watershed occupies the largest portion of land area within Carroll County. This land drain to the Upper Potomac River Tributary Basin on their way to the Chesapeake Bay. Nearly all (105,390 acres, or 85%) of the watershed's 123,396 acres are found in Carroll County with a relatively small section in Frederick County. The watershed spans MD 27 between approximately MD 30 in the north and MD 26 to the south (Taylorsville area). It

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extends from Manchester in the northeast to Detour in the west. This watershed includes portions of Taneytown, Manchester, Westminster and all of New Windsor and Union Bridge. More than 70 percent of the total acreage is devoted to farming pursuits. This watershed also contains the Little Pipe Creek Rural Legacy area. Significant urbanized areas account for more than 10 percent of the total land area. Approximately 15 percent of the watershed is forested.

Liberty Reservoir

This watershed is the second largest in land area within Carroll County. The total watershed contains 104,800 acres with the southeastern edge crossing into Baltimore County; 87,292 of those areas (83%) are located in Carroll. It is part of the larger Patapsco River - Back River Tributary drainage basin. It shares its western edge with Double Pipe Creek watershed. Its northeastern boundary begins in Manchester near the junction of MD 27 and MD 30. It extends south to the Eldersburg area. It runs west to Taylorsville, where it meets the Double Pipe Creek basin. This watershed contains portions of Manchester, Hampstead, and Westminster. It also contains the unincorporated areas of Finksburg and a portion of the Freedom Growth Area. The Liberty Reservoir watershed is among the most urbanized with nearly 20 percent of the land area developed. Nearly 50 percent of this basin is devoted to agricultural uses and includes the Upper Patapsco Rural Legacy area. The majority of the remaining land area of the watershed is forested.



Loch Raven Reservoir

The Carroll County portion of this watershed is the smallest land area of any of the County's nine watersheds. The watershed contains a total of 138,803 acres but only the westernmost tip (564 AC or 0.4%) crosses into Carroll County. This watershed is considered part of the Upper Western Shore Tributary drainage basin. This small section is entirely located within the Town of Hampstead. The western edge runs concurrent with the alignment of MD 30 at the southeastern corner of the community. Its northern edge roughly follows MD 88/Black Rock Road. The Carroll County portion of this watershed is considered urbanized. Within the total watershed area, slightly more than 40 percent is used for agricultural purposes. Roughly 40 percent is forested areas. The remainder is considered urbanized.

Lower Monocacy River

This watershed is found in the southwestern corner of Carroll County and also drains into the Potomac River via the Upper Potomac Tributary drainage basin. The Carroll County

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portion of this basin is a small wedge (5,347 AC or 3% of the watershed) along the eastern edge of the watershed. Its northern limits extend just north of MD 26 where it abuts the Double Pipe Creek watershed. Its eastern boundary nearly matches the course of MD 27 to its intersection with Buffalo Road in Mount Airy. The Carroll County – Frederick County border defines the western limits of the Carroll County portion. The watershed contains a portion of the Town of Mount Airy. The watershed covers a total of 194,685 acres. The remaining lands are classified as forested.

South Branch Patapsco River

This watershed spans most of the southern portions of Carroll County that lie south of MD 26. It is bounded to the west by the Lower Monocacy watershed along the MD 27 corridor and by the Liberty Reservoir watershed to the north. The South Branch watershed is part of the larger Patapsco River – Back River drainage basin. This watershed contains the largest portion of the Carroll County section of Mount Airy, the entire Town of Sykesville, and a portion of the Freedom Growth Area. The Piney Run Reservoir is located in the eastern section of the watershed. The planned Gillis Falls Reservoir will also be located in this watershed. The southern limits of this watershed cross over the main stem of the South Branch of the Patapsco River into northern Howard County. This watershed contains 54,937 acres of land; 70 percent of the watershed (38,714 AC) lies within Carroll. Approximately 10 percent is urbanized and about 50 percent devoted to agriculture. Slightly more than 30 percent of the watershed is forested.

Lower North Branch Patapsco River

This watershed is found at the extreme southeastern corner of Carroll County. Only a very small portion (555 AC, or 1%) of the watershed's 75,755 acres lies within the county's borders. The majority of the Carroll County portion of the watershed lies within Patapsco Valley State Park. More than 42 percent of the total land area is urbanized, and another 40 percent is forested. Roughly 12 percent of the basin's lands are in agricultural use.

It should be noted that the Town of Mount Airy is divided between two counties, Frederick and Carroll. Although this WRE is based on Carroll County, the Town of Mount Airy needs to be reported as a whole. The boundaries need to consider the entire limits, and, therefore, need to include the applicable Frederick County watersheds. In particular, the following Frederick County watersheds are within the Town of Mount Airy: Upper Bush Creek, Lower Linganore Creek, and Upper Linganore Creek. For the purposes of Mount Airy's requirements, additional information regarding these watersheds is found in the Frederick County WRE.

■ **Designated Growth Areas (DGA)**

Designated Growth Areas are the smaller geographic areas of the county where the majority of Carroll County's growth is planned to occur. Community comprehensive plans are prepared for these areas that are focused on these areas and evaluate land uses at a more local scale. Carroll's eight municipalities are at the heart of the DGAs, with the exception of Sykesville, which lies along the southern edge of the Freedom area. Additional land surrounding most of the municipalities is identified and planned for future annexation into the municipality to accommodate and serve planned growth. The limit to which a

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municipality plans to annex land in the future is referred to as the GAB. In most cases, the Freedom Growth Area Boundary (GAB) extends well beyond what Sykesville will ever annex. The Finksburg area is not considered a DGA. The municipal Priority Funding Areas (PFAs) can be found within these boundaries. These are the areas for which municipal public water and sewer services are provided. Each of these communities develops an individual community comprehensive plan.

Carroll County's DGAs and their associated GAB are shown on the map titled "Designated Growth Areas and Priority Funding Areas."

■ Priority Funding Areas (PFAs)

The PFA requirements were adopted in 1997 as part of a larger group of State Smart Growth implementation measures and became effective on October 1, 1998. The intent is to ensure that State funding and resources are directed to the most appropriate areas for growth and development. The measure established criteria to define PFA boundaries. Locations that were already developed (such as existing towns or rural villages) and could grow further, via infill development and residential or business development within planned growth areas, were targeted.



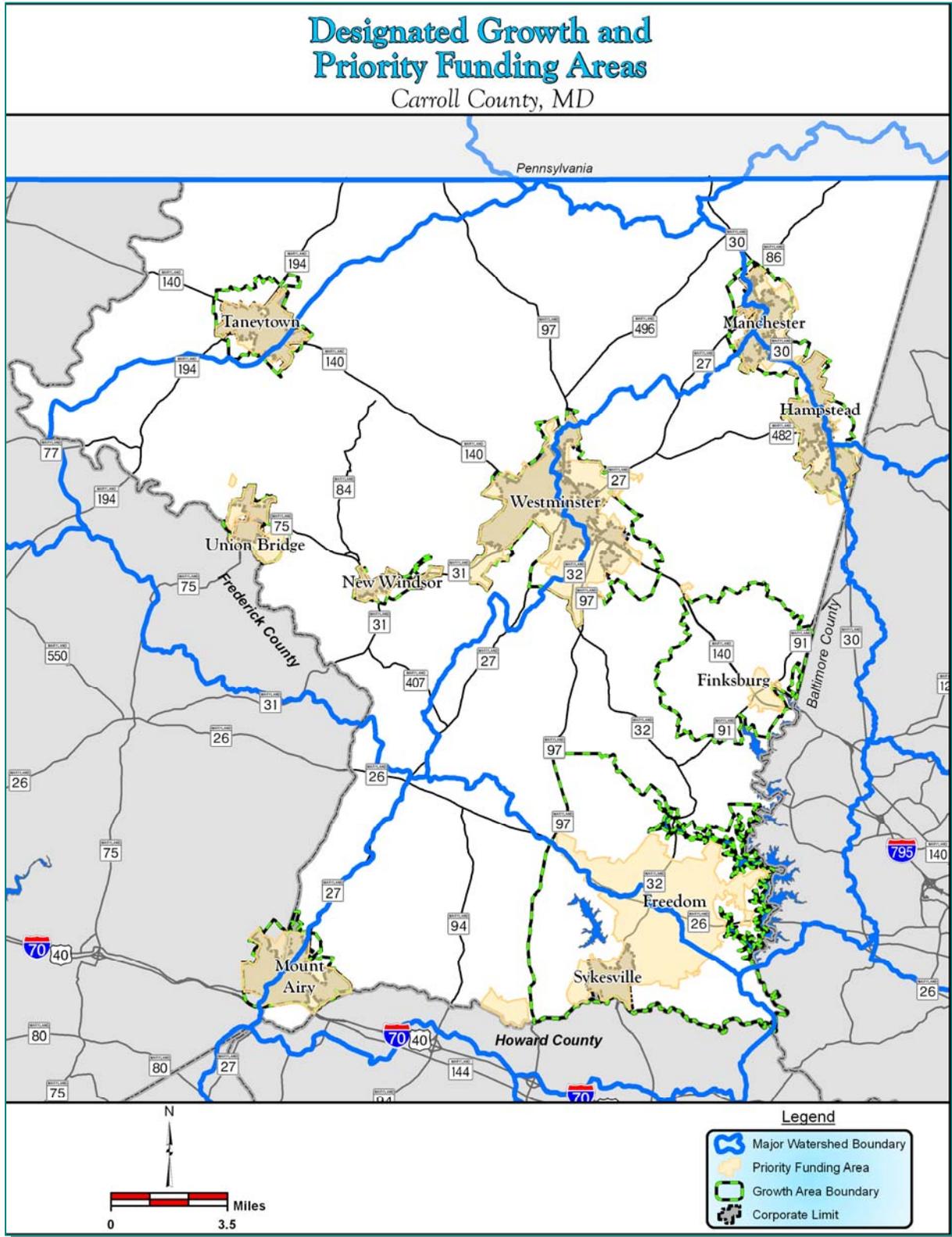
To be designated as a PFA, a residential area needed to meet minimum density requirements, already be served (or planned to be served) by public sewer facilities, and land use designations and/or development plans must satisfy Smart Growth guidelines for minimum density. Other land uses such as employment, industrial, commercial/business, or mixed-use or transit-oriented



developments may also be designated as a PFA as long as sewer service is (or will be) provided and these uses fall within DGAs. A PFA was originally designated for each of the municipalities or growth areas, eligible industrial areas, and the 35 rural villages in Carroll County.

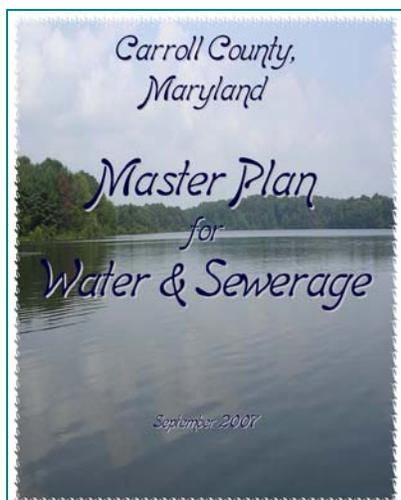
The existing PFA boundaries for Carroll County are shown on the "Designated Growth and Priority Funding Areas" map.

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■ Master Plan for Water and Sewerage



The Carroll County *Master Plan for Water & Sewerage* presents the goals for water and sewer planning for the entire county. Background information is provided for water and sewer planning and service in Carroll County and its municipalities, including legislative and policy decisions that have been made by local and state governments.

The *Master Plan for Water & Sewerage* is updated on a triennial basis. With the triennial updates, revisions are made to reflect changes that have occurred to various water and wastewater facilities or plans for improvement to these facilities around the county. Amendments to the plan are processed on a biannual basis – in the spring and fall each year.

Both the water and wastewater facilities are separated into service areas. Existing and planned facilities and associated infrastructure are detailed. In addition, the plan contains more specific information on the maintenance and operations of the public systems and associated infrastructure. Charts and maps illustrate where the specific water and sewer infrastructure is located, as well as the planned water service and sewer service areas. Information is included for specific privately and publicly owned systems. Carroll County has no combined stormwater sewer systems or overflows.

For more information and details regarding operations and management or specific improvements in design and capacity, please reference the *Carroll County Master Plan for Water & Sewerage*.

■ Water and Sewer Service Areas

The residents and businesses of Carroll County receive their water supplies and sewerage services from a mixture of public and private systems. The majority of Carroll's *land area* is served by individual wells and septic systems which are privately owned and operated. Most of these systems serve individual properties while some serve a small cluster of users. The majority of the County's *population* (89,545, or about 51%) is served by public water and/or sewerage systems. The current public systems serve Carroll's DGAs, in which the highest densities are located, including the County's eight municipalities. Four of the County's rural villages are also served by either public water and/or sewer systems, as a result of problems that occurred in those areas. These systems are not intended to accommodate additional growth beyond any infill potential.

Maryland law requires that operators of public water and/or sewerage systems develop and regularly update a master plan for these services. Operators are directed to describe not only the current systems components, capacities, service areas, and operational requirements, but also plans for future service needs, demands, and capacities. In Carroll

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County this plan, the *Master Plan for Water & Sewerage*, is updated by the County in cooperation and consultation with each of the municipalities every three years and is amended semi-annually. While the local governing bodies develop and adopt the plan, it cannot be implemented until reviewed and approved by MDE.

Among the most important components of this master plan are the planned service areas for each system. These system service areas describe the location where the service exists or is planned to be provided. They also establish a prioritized sequence for expanding the systems. The master plan establishes four categories for providing either water or sewer system services:

Existing/Final Planning Service Areas

These are locations where community systems are either in place, under construction, or have completed final plans and/or engineering specifications for that portion of the system.

Priority Service Areas

These are areas that are likely to be served by community systems and are anticipated to begin construction within two years or where major system components will likely either be funded or completed as part of the current six-year capital improvement program (CIP) budgeting cycle. Priority areas also include areas which are immediately adjacent to existing facilities. It is a standard requirement that any development projects occurring in a Priority Service Area will be required to connect to the community system(s).

Future Service Areas

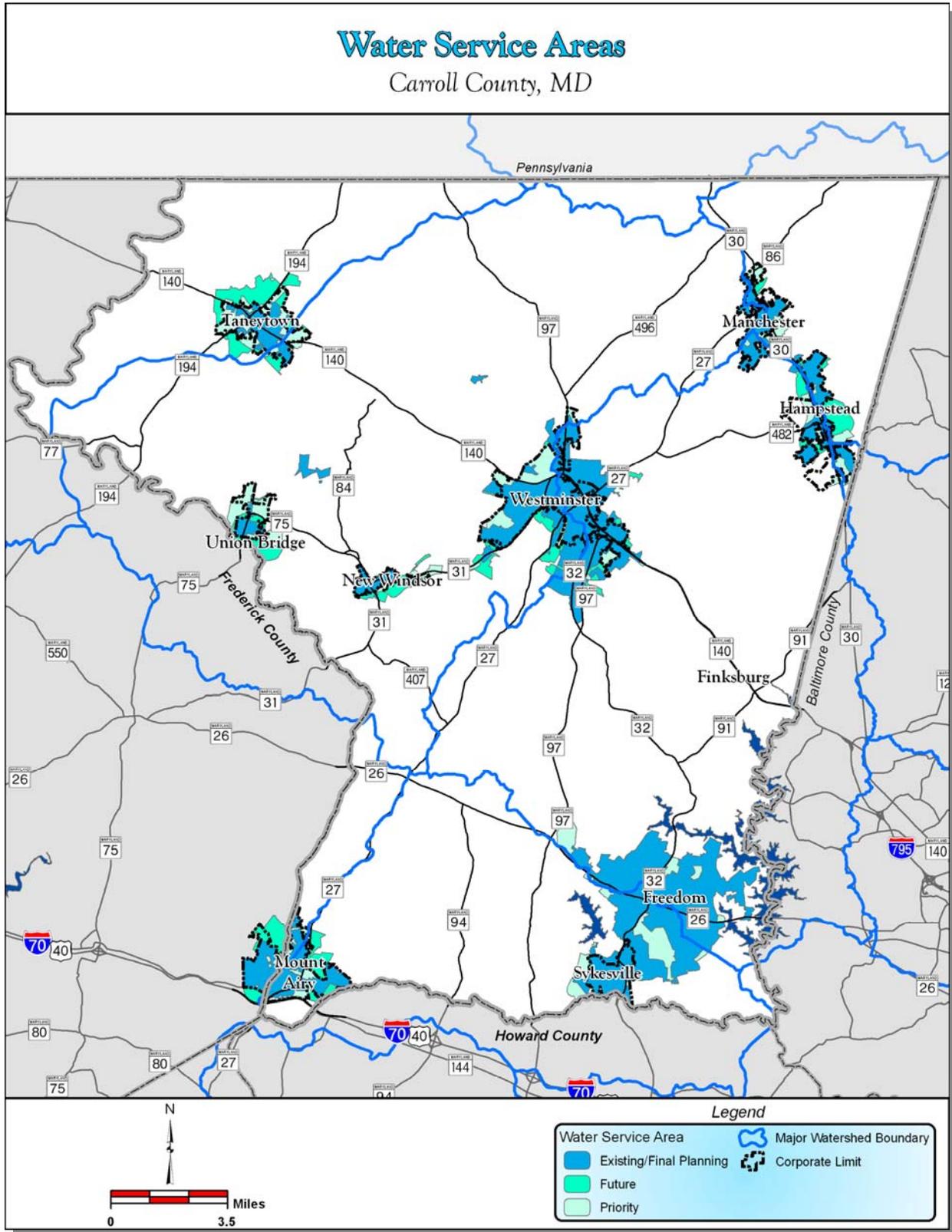
Future Service Areas are those regions where community systems are anticipated to expand and be served within a seven- to ten-year period. Location in the Future Service Area, however, does not guarantee that services will be provided within that time period or that the region will develop in any specified timeframe. Before a property can connect to the relevant community system(s), the master plan would need to be amended to place the property in at least the priority service area(s).

No Planned Service Areas

No Planned Service Areas are those locations which are not envisioned to be served by a public water and/or sewerage system within the current construction or CIP cycle or within a 10-year planning horizon.

This delineation process helps individual communities direct their growth and development patterns. By planning for needed expansion, system operators seek to balance the rates of residential growth with needed commercial, employment or other business development while ensuring that appropriate capacity will be available for public facilities such as schools, libraries, and other community services. These prioritized rankings are also intended to aid system operators in budgeting for and seeking funding needed to ensure that planned capacity and system needs are met on a timely basis.

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Carroll County's existing public water and sewerage systems and their current planned service areas are shown on the maps titled "Water Service Areas" and "Sewer Service Areas." As depicted on these maps, planned service areas for public water do not always match planned service areas for public sewer.

The following tables detail the major public water and sewer systems within Carroll County. The data are organized by service area and relationship to the total area within a community's GAB. For each municipal system, the tables show the acreage for the planned service area within the GAB and outside it. The portion of the DGA that is in the No Planned Service Area is also reported by acreage. These acreages are summed for a countywide total.

2008 Existing and Planned Water Service Areas Acreage

System Name	Service Area (by category) Inside GAB			Service Area Outside GAB	No Planned Service Inside GAB
	Existing/Final Service	Priority Service	Future Service		
Freedom/Sykesville	8,460.5	1,576.1	0.0	0.0	17,612.4
Hampstead	1,422.1	708.4	812.2	22.7	501.9
Manchester	1,042.8	361.3	94.1	0.0	1,982.8
Mount Airy	2,047.9	388.8	1,172.7	10.3	73.7
New Windsor	424.2	330.8	293.4	0.0	14.6
Taneytown	1,014.2	1,053.3	1,255.3	10.9	7.7
Union Bridge	265.3	712.6	452.3	0.0	212.2
Westminster	6,566.7	1,011.5	965.3	178.0	2,486.2
Total Acreage	21,243.7	6,142.8	5,045.3	221.9	22,891.5

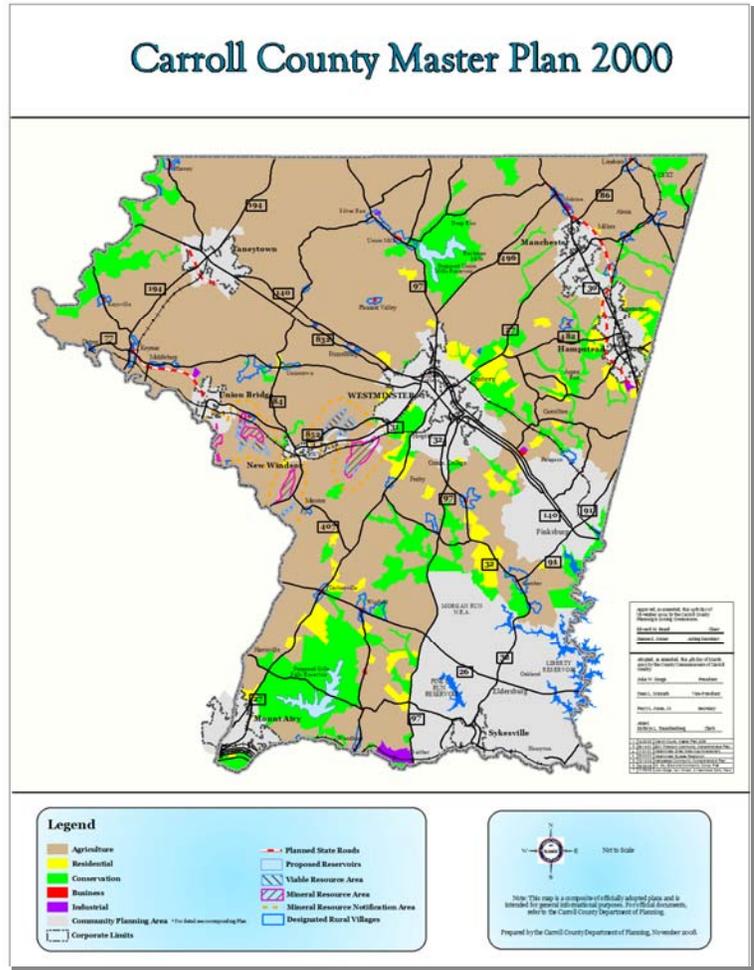
2008 Existing and Planned Sewer Service Areas Acreage

System Name	Service Area (by category) Inside GAB			Service Area Outside GAB	No Planned Service Inside GAB
	Existing/Final Service	Priority Service	Future Service		
Freedom/Sykesville	5,517.6	1,979.2	731.3	0	19,421.0
Hampstead	557.7	1,252.5	0.0	22.7	1,634.4
Manchester	796.3	351.0	115.1	0	2,218.6
Mount Airy	2,047.9	388.8	1,172.7	10.3	73.6
New Windsor	342.8	73.9	525.0	6.8	25.0
Taneytown	1,019.7	1,066.0	1,238.0	18.8	14.6
Union Bridge	280.7	744.3	406.8	0	210.5
Westminster	6,759.0	916.2	504.0	111.8	2,784.3
Total Acreage	17,321.7	6,771.9	4,692.9	170.4	26,382.0

4 Comprehensive Plan Overview

The 2000 Carroll County Master Plan represented the first review and revision of the direction set forth by the original 1964 Carroll County Master Plan. The 2000 plan essentially reaffirmed support for the basic premises, concepts, and development patterns charted in the 1964 Plan. There were two overriding goals of the 1964 plan. The first was to focus growth in and around existing population centers, primarily the incorporated towns, where public water and sewer service is already available. The second goal was to preserve farmland.

In the 2000 master plan, Carroll's eight municipalities and the Freedom area would continue to serve as the county's DGAs. These are the areas in which the majority of planned growth is focused. The rural character of the county is to be preserved through measures that protect our natural and cultural resources, minimize residential sprawl, and save farmland. The County would also continue to pursue the long-standing goal of preserving 100,000 acres of farmland. Employment growth and provision of adequate public facilities are also priorities. The implementation of the concurrency management program came about through the 2000 master plan process.

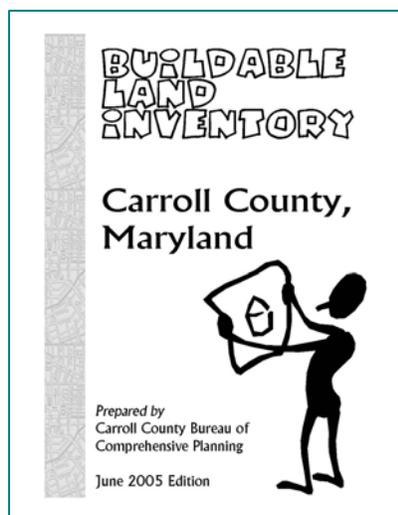


5 Existing Planned Growth

This section presents growth estimates for future residential, commercial, and industrial development that is based on the land use designations identified in the county's community comprehensive plans and countywide comprehensive plan as currently adopted. The tables provided report additional residential growth in *lots*. Additional commercial and industrial growth is reported in acres of *land*.

■ Buildable Land Inventory

Methodology for calculating future growth is defined in the *Carroll County Buildable Land Inventory Report*. The buildable land inventory (BLI) is an inventory of potential additional



residential lot yield that could result from unimproved lots and lots with further subdivision potential. Various factors influencing residential lot yield were considered, such as easements, ownership, certain environmental features, etc. Each individual parcel that is designated Residential, Agriculture, or Conservation was calculated based on its residential development potential. Acreage of land zoned for commercial or industrial uses was included in the report, but an analysis of buildable acreage was not.

A subsequent analysis identified land designated for business or industrial use. Buildable acreage for each parcel was estimated and calculated. Various constraints were factored in to derive a net amount of land that is considered developable (i.e., buildable). Some of the factors included

size of the parcel, location of existing development on the parcel, availability of public water and sewer service, streams, wetlands, and floodplains.

■ Population Projections

Annual population projections produced by the Carroll County Planning Department are primarily derived from number of households. The number of use and occupancy (U&O) permits issued each year is used to determine population growth. Over the last decade, the County has experienced periods of both rapid growth and declines in development activity. Because of this inconsistency, a growth rate (.986%) was determined by examining the last eight years in total (instead of the typical last 5-year period) for the County's Round 7B submittal to the Baltimore Metropolitan Council in January 2009.

Based on current land use designations in the county, the entire county will grow to a total population of nearly 258,200 once all land is fully developed (i.e., at buildout). Using the average number of U&Os issued over the last 8 years, it was determined that the County would add approximately 14,554 additional households, or roughly 685 units per year, between 2010 and 2030. The table below shows the projected population for 2030 and the projected year the county would reach build out under current land use designations. At this rate of growth, the county would reach a buildout population of 258,187 around 2060.

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Carroll County Population Projections

	2010	2030	<i>Buildout (2060)</i>
Population	175,520	207,317	258,187
Households*	61,594	76,148	95,315
PPH*	2.79	2.67	2.65

Source: Carroll County Department of Planning (Round 7B submittal to BMC), January 2009

* excludes group quarters

The BLI data were used to estimate development capacity of each Census Block Group, essentially a smaller subdivision of Census Tracts and Election Districts. The number of future lots was determined by adding the number of existing lots to the number of potential lots. Under current conditions, population and household projections for Carroll County (Round 7B) show a number of Block Groups throughout the county reaching build out by 2030, some as early as 2015 assuming the 685 units per year is achieved. Once the number of potential lots was reached in a determined area, the growth rate was no longer applied and the population and household numbers remained static. If more development potential existed, the applicable growth rate continued to be applied.

■ Within Each Watershed

The following table provides estimated future residential, commercial, and industrial development within the county, broken down by watershed. The Liberty Reservoir and Double Pipe Creek watersheds represent the majority of the county's land area. Combined, therefore, it is not surprising that they account for almost two-thirds of the total number of additional residential lots. The same watersheds account for just over half of the developable acreage planned for commercial development. For industrial development, the Liberty Reservoir alone contains nearly 40 percent of all the developable industrial land in the county. Countywide, an additional 34,354 potential residential units are estimated.

Planned Additional Residential, Commercial, and Industrial Development for each Watershed

Watershed	Additional Residential Units (lots)	Developable Commercial Land (acres)	Developable Industrial Land (acres)
Prettyboy Reservoir	3,045	61	19
Loch Raven Reservoir	383	7	54
Lower North Branch Patapsco River	40	0	0
Liberty Reservoir	10,895	102	1,125
South Branch Patapsco River	5,172	68	640
Lower Monocacy River	372	13	0
Double Pipe Creek	11,214	118	589
Upper Monocacy River	3,057	58	483
Conewago Creek	176	0	0
County Total	34,354	427	2,910

Source: Carroll County Department of Planning, March 2009

Water Resources Element

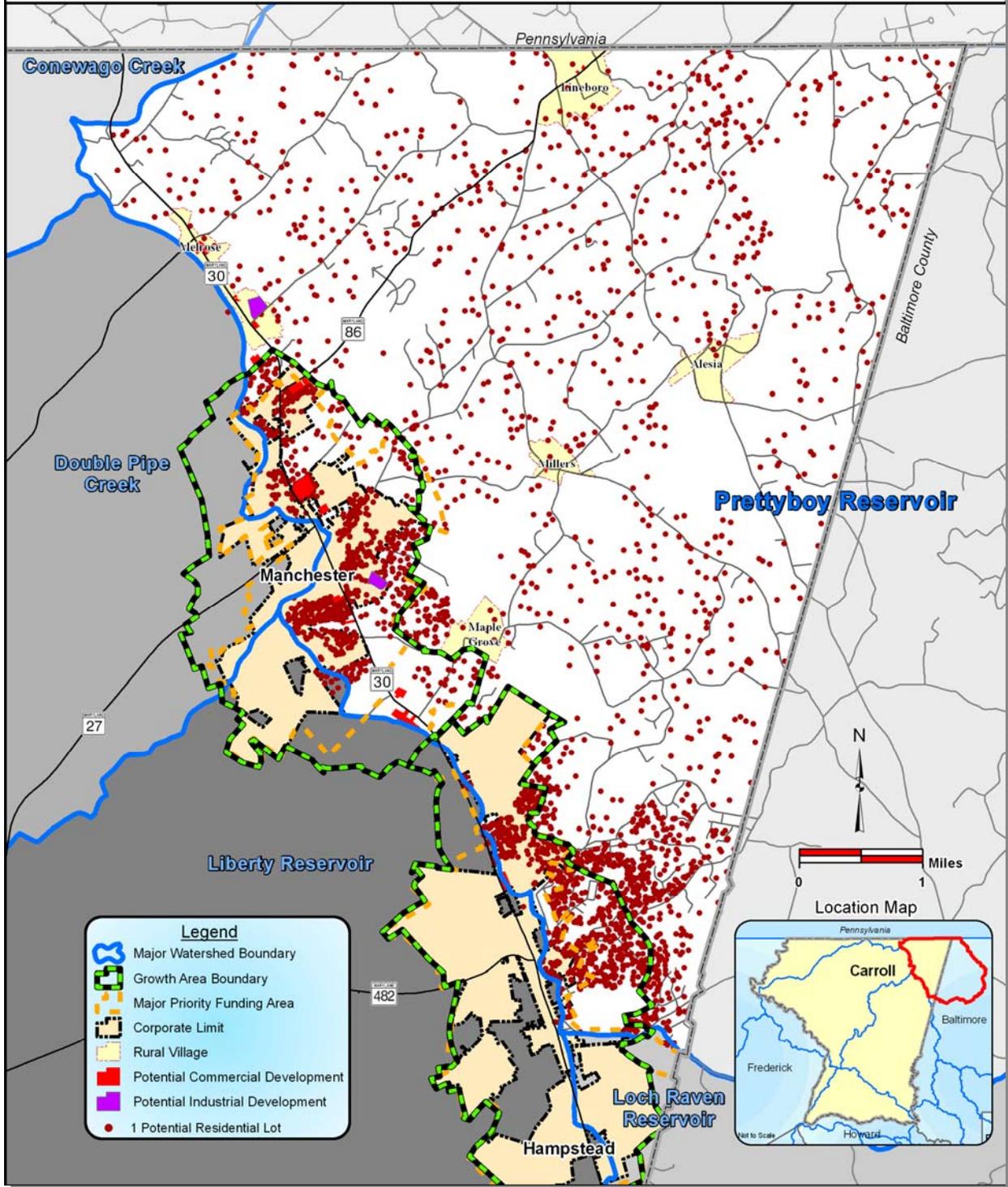
The following nine maps show potential additional residential lots and developable commercial and industrial land based on current land use plans. Each map provides this information within the confines of one of the nine watersheds that comprise Carroll County. As can be seen on the maps, much of the planned growth is concentrated within the planned growth areas and municipalities. However, substantial growth, particularly new residential units, would still occur outside these planned growth areas.



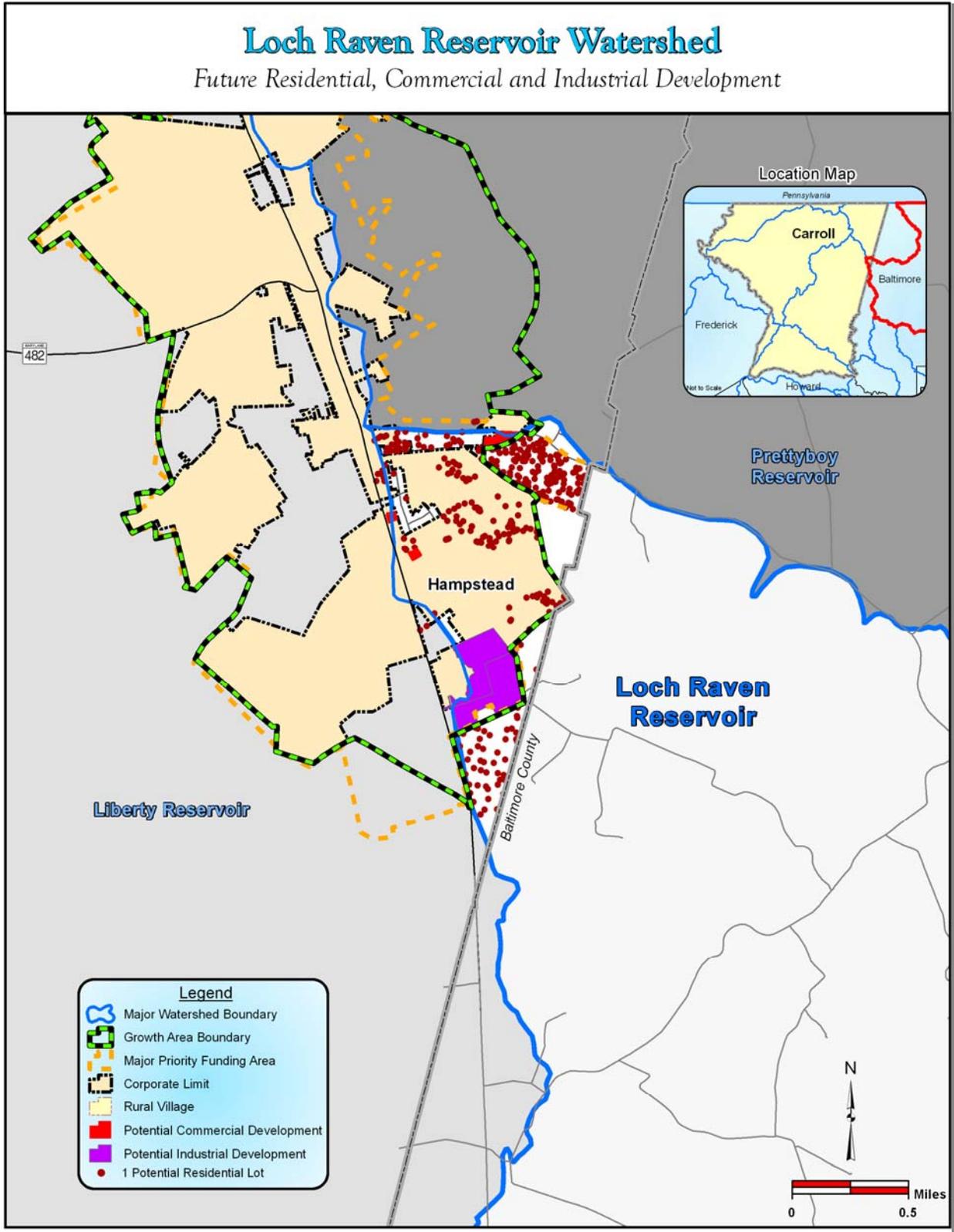
Water Resources Element

Prettyboy Reservoir Watershed

Future Residential, Commercial and Industrial Development



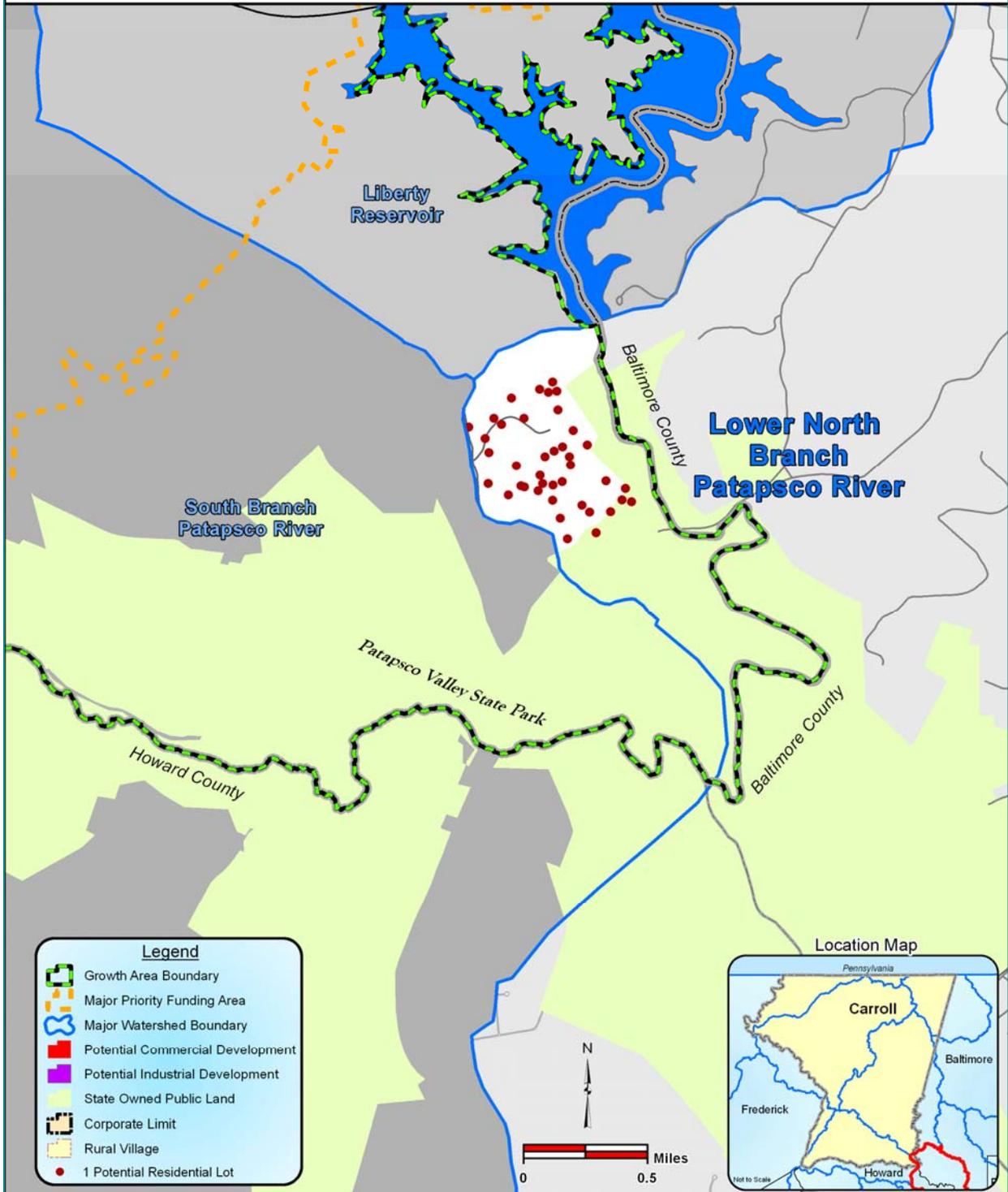
Water Resources Element



Water Resources Element

Lower North Branch Patapsco River Watershed

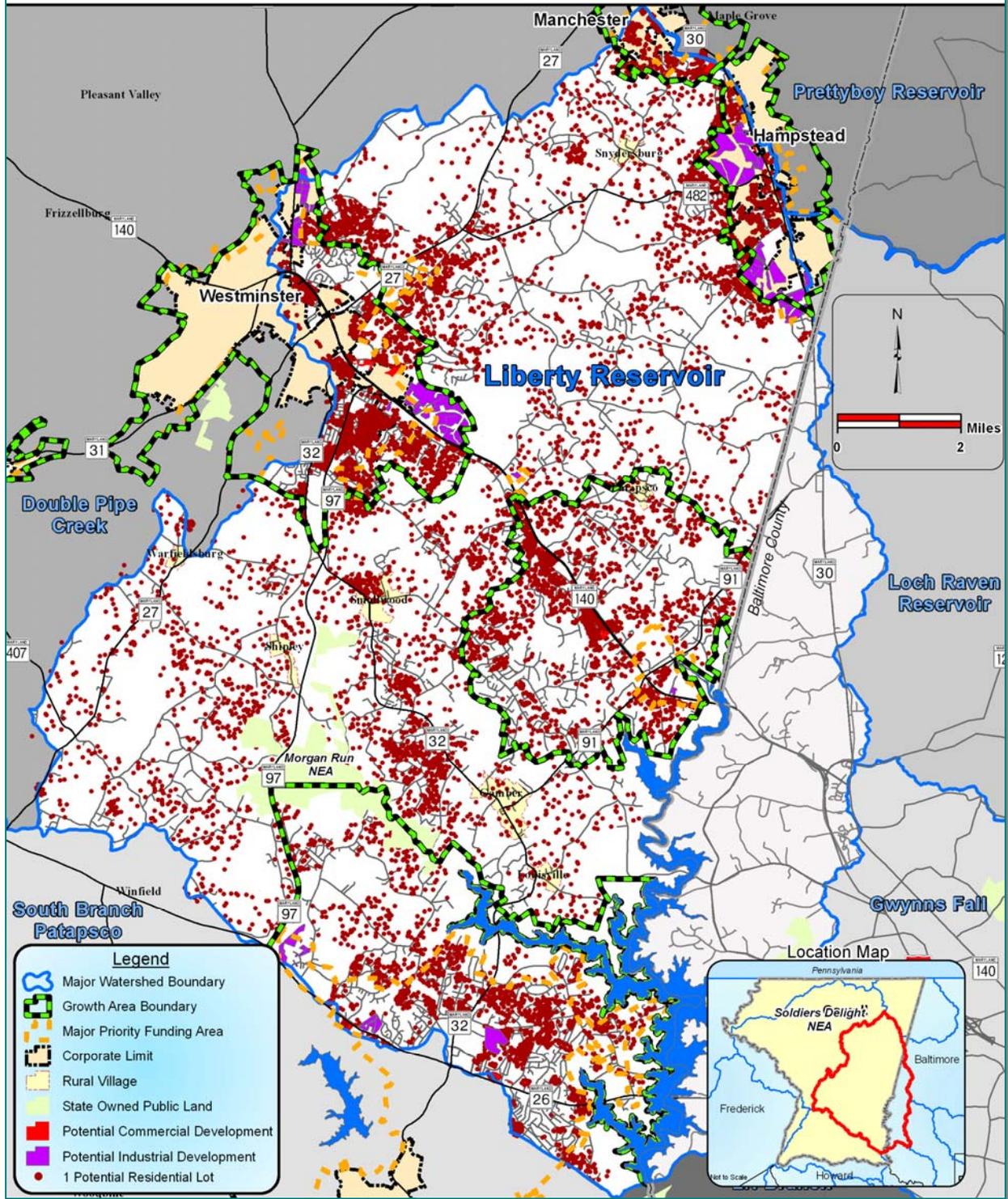
Future Residential, Commercial and Industrial Development



Water Resources Element

Liberty Reservoir Watershed

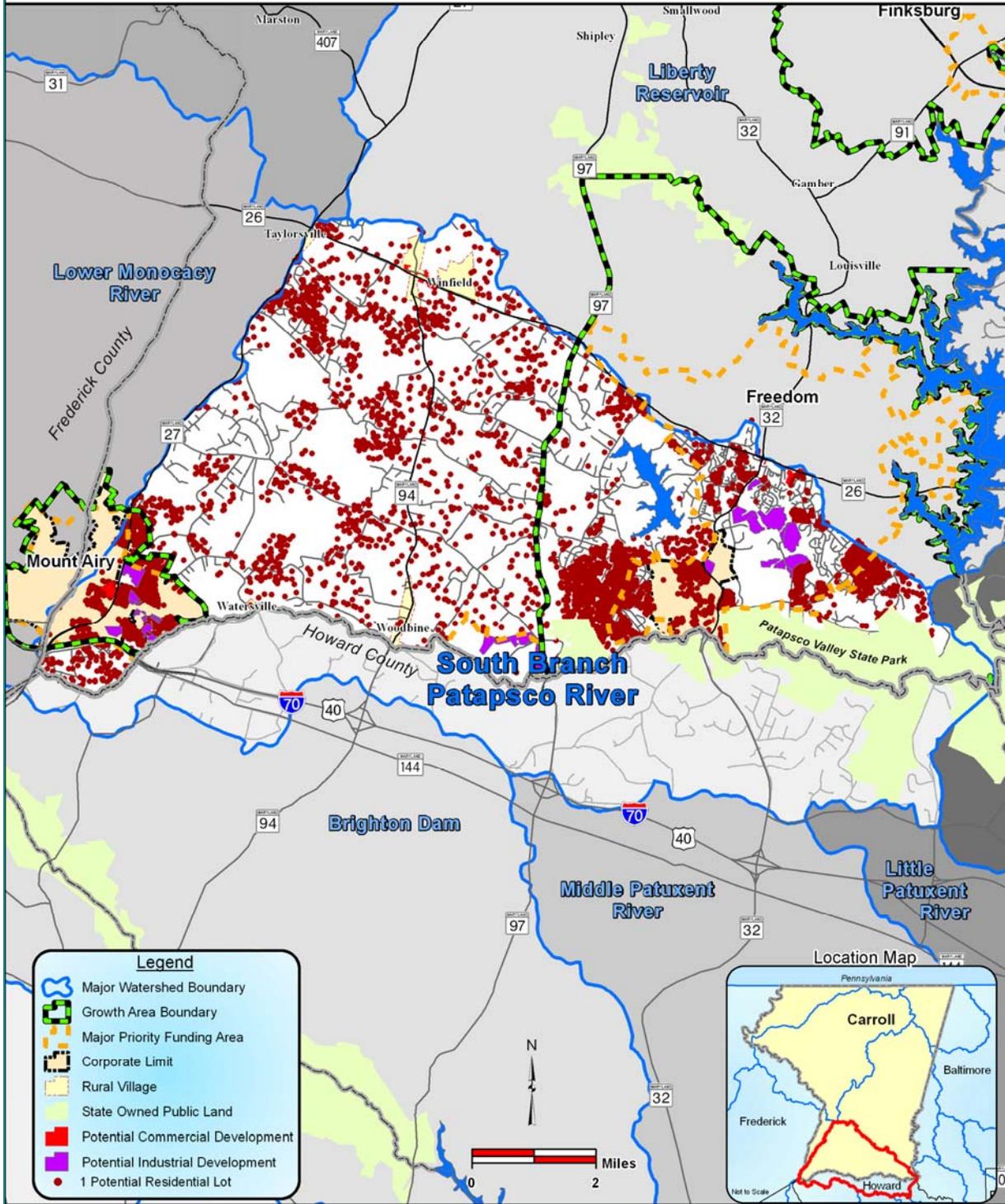
Future Residential, Commercial and Industrial Development



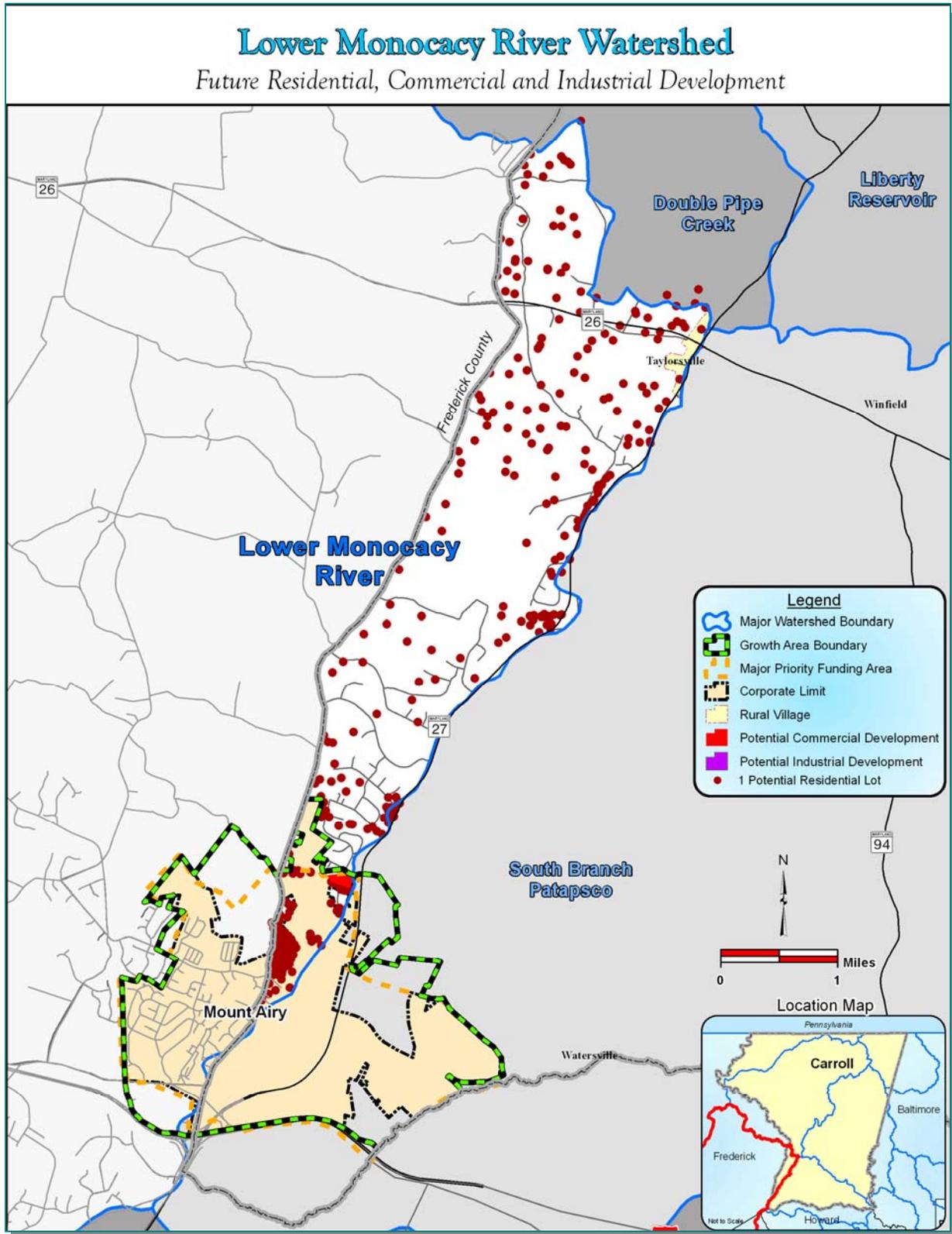
Water Resources Element

South Branch Patapsco River Watershed

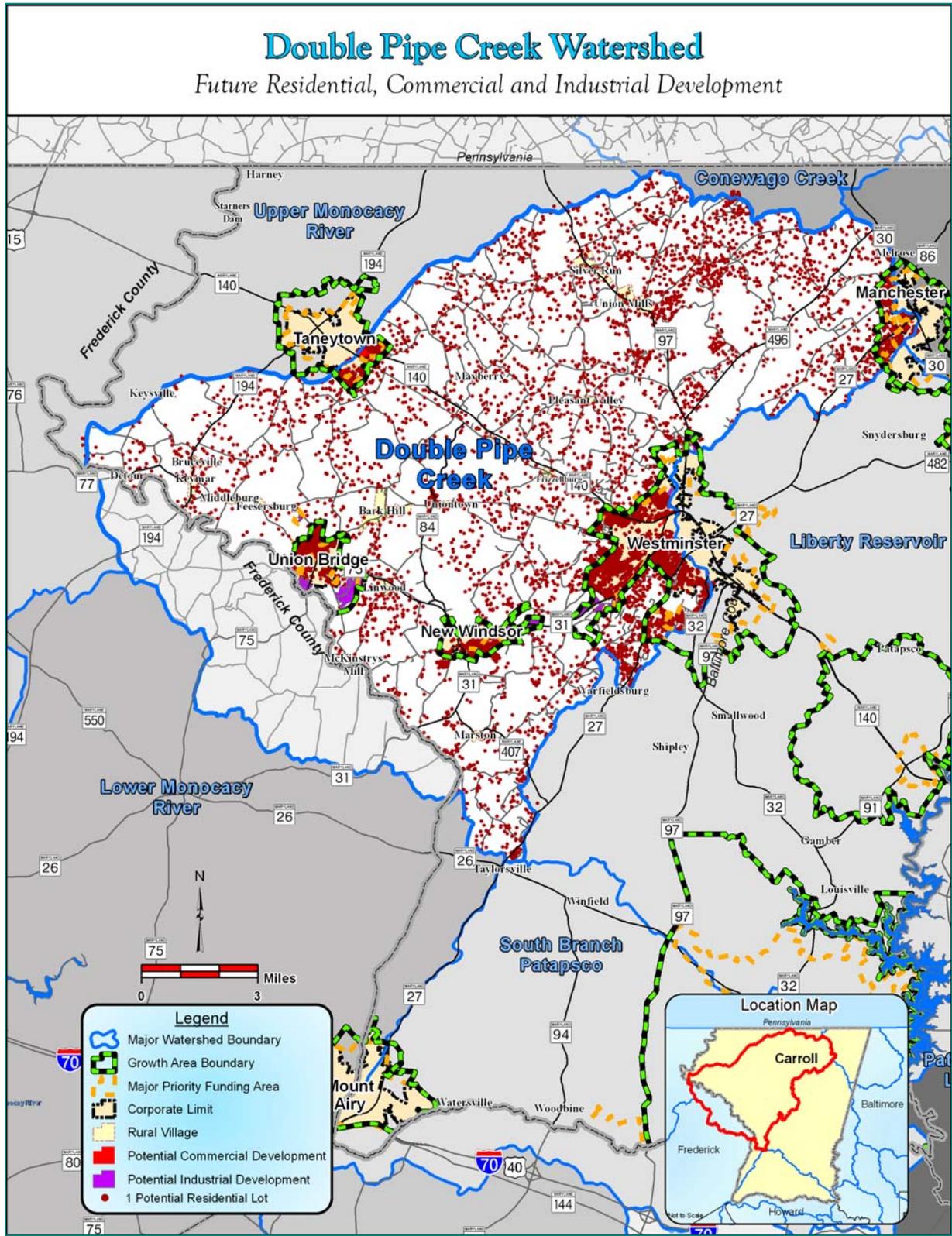
Future Residential, Commercial and Industrial Development



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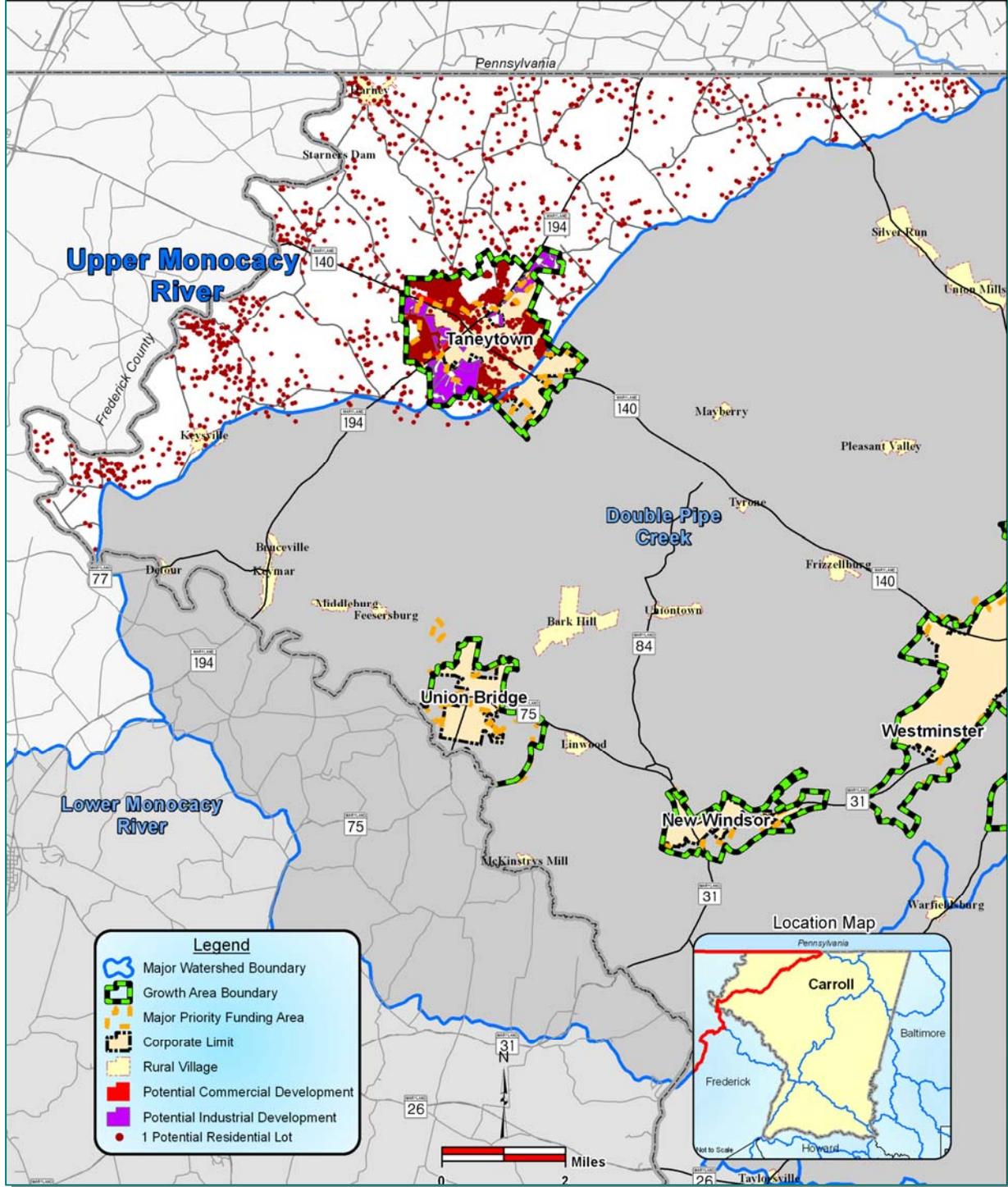
Water Resources Element



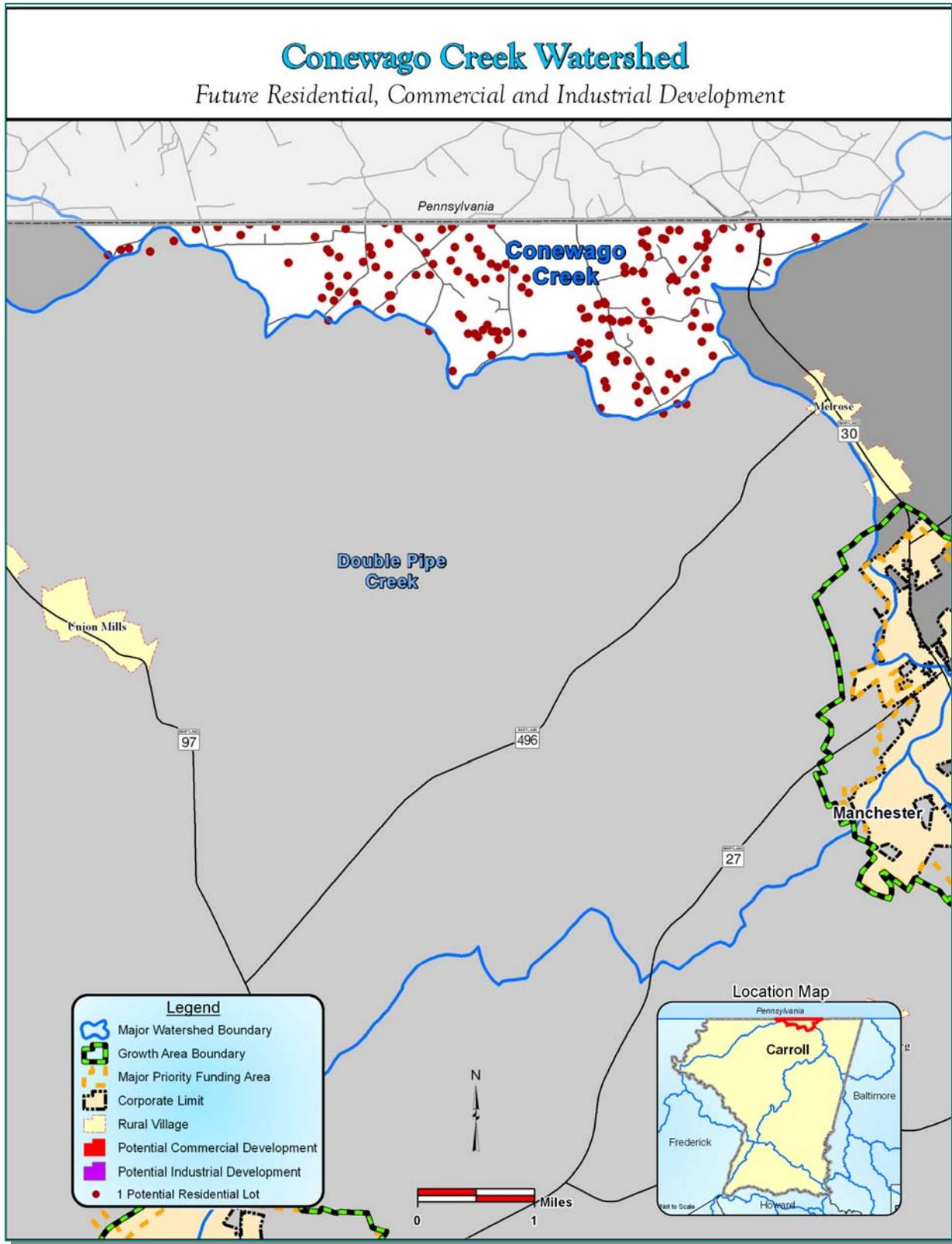
Water Resources Element

Upper Monocacy River Watershed

Future Residential, Commercial and Industrial Development



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■ Within Designated Growth Areas

The following table reports additional development potential for each of the county's DGAs that have public water supply and sewerage systems that serve a portion of the DGA.

The overall planned water and sewer service areas include not only the areas that are developed and currently served, but also additional areas that are planned to be served. Some of these additional areas are undeveloped. Others have existing development but are currently unserved. The data in the table below pertain only to *new*, additional development that would be served by the respective system.



For most of the communities, the geographic area covered by the planned water service area and sewer service area are very similar, although differences do exist. There are some properties that may be served or planned to be served by one but not the other. In addition, the planned water and sewer service areas are located within the overall DGA and comprise a majority of that area for most communities. However, there are a few instances where the planned service area extends beyond the GAB. In the case of Mount Airy, the numbers of additional residential lots estimated for the planned service areas slightly exceed the number for the overall growth area. Other DGAs contain areas designated as No Planned Service, either because they are not intended to be served or they are not intended to be served within the ten-year timeframe of the Water and Sewerage Master Plan.

Note: The data in the following table are based on land use designation as identified in the respective community comprehensive plan. The one exception is for the “Existing/Final Planning” portion of the water and sewer service areas for commercial and industrial developable land, where the data are based on current zoning. The balance of the planned service areas (i.e., “Priority” and “Future”) is based on land use designation. This small difference results in very minor disparities in the number of developable commercial and industrial acreages. Using the land use designations is meant to account for ultimate planned growth in these areas.

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Planned Additional Residential, Commercial, and Industrial Development within Designated Growth Area and Planned Water and Sewer Service Areas

Community	Defined Area	Additional Residential Units (lots)	Developable Commercial Land (acres)	Developable Industrial Land (acres)
Freedom (including Sykesville)	Planned Water Service Area	2,823	35	466
	Planned Sewer Service Area	2,296	31	382
	Designated Growth Area	4,473	35	566
Hampstead	Planned Water Service Area	1,404	11	356
	Planned Sewer Service Area	582	19	198
	Designated Growth Area	1,404	21	534
Manchester	Planned Water Service Area	963	18	0
	Planned Sewer Service Area	874	17	0
	Designated Growth Area	1,741	63	8
Mount Airy	Planned Water Service Area	1,149	34	126
	Planned Sewer Service Area	1,149	34	126
	Designated Growth Area	1,147	34	126
New Windsor	Planned Water Service Area	528	0	124
	Planned Sewer Service Area	528	0	130
	Designated Growth Area	528	4	132
Taneytown	Planned Water Service Area	2,983	117	483
	Planned Sewer Service Area	2,983	117	483
	Designated Growth Area	2,985	118	481
Union Bridge	Planned Water Service Area	1,373	9	175
	Planned Sewer Service Area	1,373	9	180
	Designated Growth Area	1,383	10	265
Westminster	Planned Water Service Area	5,057	46	269
	Planned Sewer Service Area	4,982	48	265
	Designated Growth Area	5,655	47	578

Source: Carroll County Department of Planning, March 2009

■ Within Priority Funding Areas

The following table indicates additional development for each of the PFAs associated with larger communities. For a given community, the PFA generally comprises a portion of the area defined for the DGA. In the case of Hampstead, the number of developable acres of industrial land is larger in the PFA (575 AC) than in the DGA (534 AC). In this case, although it wasn't within the corporate limits, a large industrial area southwest of the growth area was included in the PFA.

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Planned Additional Residential, Commercial, and Industrial Development within Priority Funding Area

Priority Funding Area	Additional Residential Units (lots)	Developable Commercial Land (acres)	Developable Industrial Land (acres)
Finksburg	154	6	5
Freedom/Sykesville	2,821	35	555
Hampstead	1,096	19	575
Manchester	1,267	31	8
Mount Airy	959	34	126
New Windsor	240	0	89
Taneytown	1,775	77	237
Union Bridge	1,338	10	231
Westminster	5,096	41	291

Note: This table includes only those PFAs that are associated with the County's major DGAs, plus the PFA for Finksburg; excluded are the PFAs relating to Rural Villages and various industrial areas located outside the DGAs.

Source: Carroll County Department of Planning, March 2009

6 Existing Water Resource Limitations: By Watershed & Countywide

■ Clean Water Act

“The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. (The Act does not deal directly with groundwater or with water quantity issues.) The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support 'the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water.'

“For many years following the passage of CWA in 1972, US EPA, states, and Indian tribes focused mainly on the chemical aspects of the "integrity" goal. During the last decade, however, more attention has been given to physical and biological integrity. Also, in the early decades of the Act's implementation, efforts focused on regulating discharges from traditional "point source" facilities, such as municipal sewage plants and industrial facilities, with little attention paid to runoff from streets, construction sites, farms, and other "wet-weather" sources.

“Starting in the late 1980s, efforts to address polluted runoff have increased significantly. For "nonpoint" runoff, voluntary programs, including cost-sharing with landowners are the key tool. For "wet weather point sources" like urban storm sewer systems and construction sites, a regulatory approach is being employed.

“Evolution of CWA programs over the last decade has also included something of a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more

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holistic watershed-based strategies. Under the watershed approach equal emphasis is placed on protecting healthy waters and restoring impaired ones. A full array of issues are addressed, not just those subject to CWA regulatory authority. Involvement of stakeholder groups in the development and implementation of strategies for achieving and maintaining state water quality and other environmental goals is another hallmark of this approach.”

(Source: Excerpted from the U.S. Environmental Protection Agency (US EPA) website, “Introduction to the Clean Water Act,” found at <http://www.epa.gov/watertrain/cwa/>.)

Impaired Waters and Total Maximum Daily Loads (TMDLs)

In 1998, the Chesapeake Bay and many of its tidal tributaries were added to the State’s list of impaired waters (known as the 303(d) list), thus requiring the development of a TMDL to comply with the Clean Water Act. TMDL stands for “Total Maximum Daily Load.” A load refers to the amount of a given type of pollutant found in a body of water coming from all sources. Simply put, the TMDL is the highest amount of a pollutant that a body of water can accept from all sources and still meet water quality standards. A body of water is tested and assigned a TMDL value. In Maryland, nitrogen and phosphorous are the most common pollutants.

An impairment is identified when water quality monitoring data suggest that a waterbody (river, lake, estuary, or ocean) does not meet or is not expected to meet water quality standards. When a waterbody is listed, the cause (pollutant) and the priority of the impairment are identified. Waters scheduled for TMDL development in the next two years are also identified in the list.



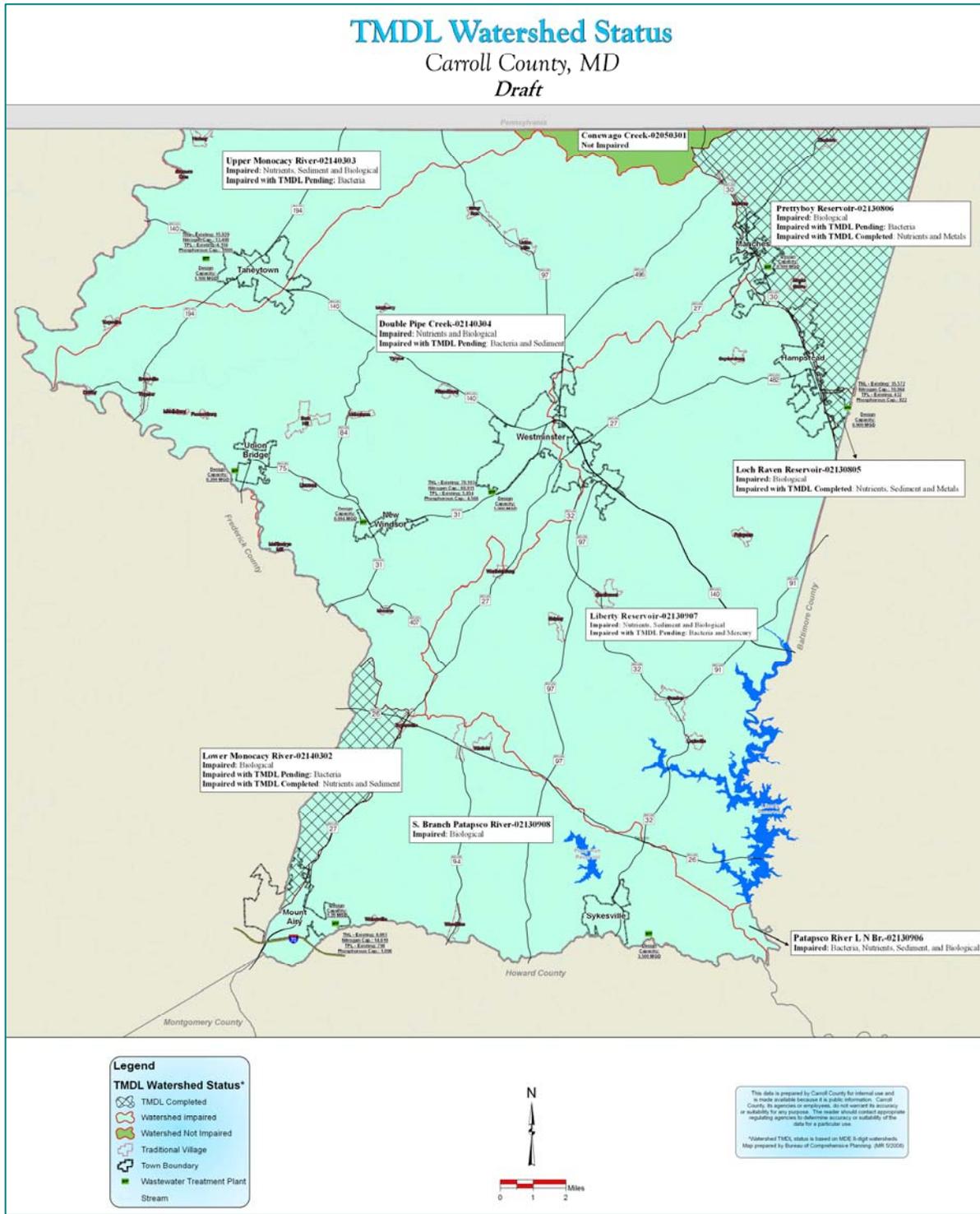
In a standard regulatory approach, TMDLs would need to be completed for the Chesapeake Bay and its tributaries by 2010. It is currently underway and anticipated to be available for public comment in the summer of 2010. Through this process, pollutant load targets will be developed by Bay segment, by source sector, and by county. More info on the Bay TMDL can be found on the EPA website at <http://www.epa.gov/chesapeakebaytmdl/>. TMDLs require a very specific implementation plan, with “reasonable assurances” (e.g., enforceable permit limits) that pollutant load allocations will be achieved. If the water quality standards are not met by 2010, a TMDL will be developed and will set pollutant loading limits for all sources within the Chesapeake Bay watershed.

Because these goals represent a limit on the amount of nutrient loading from each tributary watershed of the Bay, it is in the interest of the State and each local jurisdiction to incorporate these strategies into its decision-making process and planning efforts.

State and federal requirements to meet water quality standards using TMDL limits are resulting in revised land use and environmental requirements for the future. TMDL requirements are intended to correct the existing conditions that add pollutants to a body of

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water. New requirements for meeting TMDLs also mean new or updated planning strategies to prevent activities that may add pollutants in the future.



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The TMDL Watershed Status map indicates the areas of the county, based on watershed, that were identified as impaired for at least one substance. The hatched areas indicate watersheds for which at least one TMDL for these impaired watersheds has already been completed. The Conewago Creek watershed is the only watershed within the county that is not included on Maryland's 303(d) list. This watershed does, however, fall within the Chesapeake Bay watershed. Therefore, 100 percent of the county's land area eventually will be affected by a TMDL.

Please refer to the table in Appendix B entitled "MDE Documented TMDL Impairments for Carroll County" for a status of each of the pending and completed TMDLs for Carroll County.

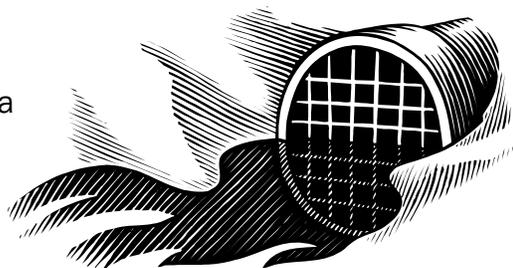
National Pollutant Discharge Elimination System (NPDES)

In 1972, Congress passed the Federal Water Pollution Control Act Amendments, commonly known as the Clean Water Act. This law was developed to control water pollution from wastewater discharges and stormwater runoff. In 1988, the US EPA created the NPDES Municipal Separate Storm Sewer System (MS4) to require municipalities, including counties, to apply for permits to control stormwater discharges. Beginning in 1990, US EPA, through the State-delegated MDE, required large municipalities, certain industrial facilities, and construction sites to obtain NPDES permits for stormwater discharges. The Phase 1 jurisdictions, located in counties or metropolitan areas with populations larger than 100,000, were required to obtain permit coverage. Carroll County was included as a Phase 1 jurisdiction.

The overall NPDES MS4 permit for Carroll County and its municipalities is administered through the County's Department of Planning. Programmatic oversight and reporting are the responsibility of the County's Office of Environmental Compliance. Monitoring, inspection, enforcement, and restoration efforts are a function of the County's Bureau of Resource Management. The County's municipalities comply with their NPDES responsibilities via a formal agreement with the County Commissioners and inclusion in the County's annual reporting requirements. In addition, they share in funding for a County position responsible for implementation and enforcement of the NPDES permit compliance.

The County has developed a very comprehensive, active NPDES restoration effort via the addition of appropriate staff and capital funding. The Bureau of Resource Management has staffing capable of monitoring, designing, managing, and funding the various initiatives needed for permit compliance. A listing of completed projects can be found in the table "Carroll County 2009 MS4 NPDES Watershed Improvement Projects." The approval of staffing and funding by the Board of County Commissioners confirms the commitment to water quality protection and enhancement by the County and its municipalities.

The County is in compliance with its current permit requirements. The County reapplied, via its annual report submittal dated July 2009, in anticipation of a new permit issuance in July 2010.



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Carroll County 2009 MS4 NPDES Watershed Improvement Projects Completed Projects

Project	BMP* Type	Watershed	Drainage Area	Impervious Acres Improved
Bateman Pond (Patapsco Project)	Surface sand filter with recovery gallery	Liberty	48.00	7.50
CC Airpark Watershed Restoration Project	Wet retention	Liberty	205.00	148.00
Chung Property Project	Wet fore-bay	Liberty	92.00	10.00
Collins Estates	Surface sand filter	Liberty	33.00	19.50
Eldersburg Elementary School	Surface sand filter	Liberty	1.45	1.00
Elderwood Village	Surface sand filter	Liberty	15.00	5.00
Englar Business Center	Shallow marsh	Liberty	95.00	80.00
Hickory Ridge	Surface sand filter with infiltration gallery	Liberty	24.00	5.00
Highpoint	Surface sand filter with infiltration gallery	Liberty	9.50	2.00
Longwell Run Project	Wetland	Liberty	550.00	208.00
Marriott Wood	Infiltration basin	Liberty	2.00	.50
Marriott Woods I	Surface sand filter with infiltration gallery	Liberty	25.00	5.00
Marriott Woods II	Surface sand filter with infiltration gallery	Liberty	12.00	2.00
Piney Run (Hampstead)		Loch Raven	400.00	107.00

*BMP = Best Management Practice



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Watershed Restoration Projects

Name of SWM Retrofit	Location	Reservoir Watershed	TSS* (lbs/yr)	Total Phosphorus (lbs/yr)	Soluble Phosphorus (lbs/yr)	Total Nitrogen (lbs/yr)	Bacteria (lbs/yr)	Drainage Area (acres)	Impervious Area Treated (acres)
Marriott Woods I	Marriottsville Rd Eldersburg	Liberty	-234.82	-1.07	-0.81	-4.47	-14,908.98	24.13	5.00
Marriott Woods II	Marriottsville Rd Eldersburg	Liberty	-99.14	-0.45	-0.34	-1.89	-6,294.78	11.62	2.00
Hickory Ridge	Velvet Run Dr Westminster	Liberty	-234.79	-1.07	-0.81	-4.47	-14,907.53	23.75	5.00
Bateman Pond	Bethel/Patapsco Rd Finksburg	Liberty	-467.12	-2.13	-1.62	-8.90	-29,658.13	47.25	7.50
Carroll County Air Business Park	Magna Way Westminster	Liberty	-6,209.95	-23.36	-13.08	-124.88	-644,780.98	204.84	148.00
Collins Estates	Collins Ave Eldersburg	Liberty	-316.75	-1.45	-1.10	-6.03	-20,111.42	32.68	19.50
Elderwood Village	Monroe Ave Eldersburg	Liberty	-223.76	-1.07	-0.78	-4.26	-14,207.24	15.28	5.00
Devlin Square	Snowfall Way Westminster	Liberty							
Westminster High School Pond	MD 97 & MD 32 Westminster	Liberty							
High Point	Oklahoma Rd Sykesville	Liberty						9.40	2.00
Arthur Ridge	Laval Dr Eldersburg	Piney Run							
Totals			-7,786.33	-30.60	-18.54	-154.90	-744,869.06	368.95	194.00

*TSS = Total Suspended Solids

■ Safe Drinking Water Act (SDWA)

“The SDWA was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources: rivers, lakes, reservoirs, springs, and groundwater wells. (SDWA does not regulate private wells which serve fewer than 25 individuals.)

“SDWA authorizes the US EPA to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. US EPA, states, and water systems then work together to make sure that these standards are met.

“Millions of Americans receive high quality drinking water every day from their public water systems, (which may be publicly or privately owned). Nonetheless, drinking water safety

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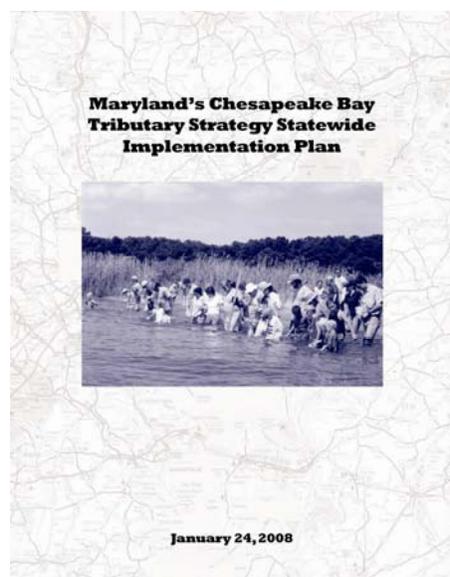
cannot be taken for granted. There are a number of threats to drinking water: improperly disposed of chemicals; animal wastes; pesticides; human wastes; wastes injected deep underground; and naturally-occurring substances can all contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or which travels through an improperly maintained distribution system, may also pose a health risk.

“Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap.

“SDWA applies to every public water system in the United States. There are currently more than 160,000 public water systems providing water to almost all Americans at some time in their lives.” (Source: Excerpted from the U.S. Environmental Protection Agency (US EPA) website, “Safe Drinking Water Act (SDWA), Basic Information,” found at <http://www.epa.gov/OGWDW/sdwa/basicinformation.html>.)

■ Chesapeake 2000 Agreement: Tributary Strategies and Pollutant Loading Caps

In June of 2000, the State of Maryland signed *Chesapeake 2000* (C2K), a new Agreement for restoration of the Chesapeake Bay. Maryland, together with Virginia, Pennsylvania, the District of Columbia, the US EPA, and the Chesapeake Bay Commission, pledged to achieve over 100 specific actions designed to restore the health of the Bay and its living resources by 2010. The actions, along with revised goals, were incorporated into *Maryland’s Tributary Strategies Statewide Implementation Plan*.



Through the process of developing the tributary strategies, nutrient caps for municipal wastewater treatment plant discharges were also developed. These caps (called ‘goals’ for plants under 0.5 mgd), which limit the loading or amount of nutrients a plant can deliver or discharge to a receiving water body (normally a stream or river), have been established for all wastewater systems in Carroll County.

The nutrient caps and status of wastewater plant upgrades and expansions can be found in the table titled “Enhanced Nutrient Reduction (ENR) Implementation Schedule.” System expansions beyond the caps can only occur if other alternative technologies or methods are undertaken which do not increase the total nutrient input to the receiving water body.

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Enhanced Nutrient Reduction (ENR) Implementation Schedule

Point Source*	Design Capacity (mgd)	2000 TNL (lbs/yr)	ENR Strategy Total Nitrogen		ENR Strategy Total Phosphorus		Projected ENR Construction Completion Year
			Load Cap (lbs/yr)	2000 TPL (lbs/yr)	Load Cap (lbs/yr)	2000 TPL (lbs/yr)	
Freedom	3.5	65,579	42,638	4,998	3,198		By 2010
Hampstead	0.9	35,572	10,964	432	822		After 2010
Mount Airy	1.2	8,883	14,619	798	1,096		By 2010
Taneytown	1.1	15,929	13,400	4,156	1,005		By 2010
Westminster	5.0	70,103	60,911	5,854	4,568		By 2010

*These facilities are identified by Maryland as "Significant," or having a planned design capacity of 500,000 gpd or greater.

Source: Maryland's Chesapeake Bay Tributary Strategy Statewide Implementation Plan, draft February 22, 2006

The County participates in the Tributary Teams. Carroll County is a part of three watersheds for which there are Tributary Teams in Maryland – Upper Potomac, Upper Western Shore, and Patapsco/Back River. Participation in the Tributary Teams allows the County to provide input and receive information on the design and timing of the basin implementation plans.

Once the Chesapeake Bay TMDL is completed, Tributary Strategies will be replaced with the Bay TMDL and the associated two-year milestones. For more information on the Two-Year Milestones, please see the BayStat website at <http://www.baystat.maryland.gov/>.

■ State Laws and Policies

Trends in the implementation of the water appropriation and permitting process have created challenges to water resource development. Local governments are finding it difficult to secure enough water from sources to meet existing or projected demands. In some instances, the physical ability to develop groundwater sources may be limiting, but in the majority of cases, it is administrative or policy issues that create obstacles. The multitude of technical and administrative issues makes development of groundwater sources costly, time-consuming, and quite unpredictable in the Piedmont setting. One example is finding ways to address the adequacy of water recharge areas, which has resulted in additional work and timeframes for moving forward with planned growth.

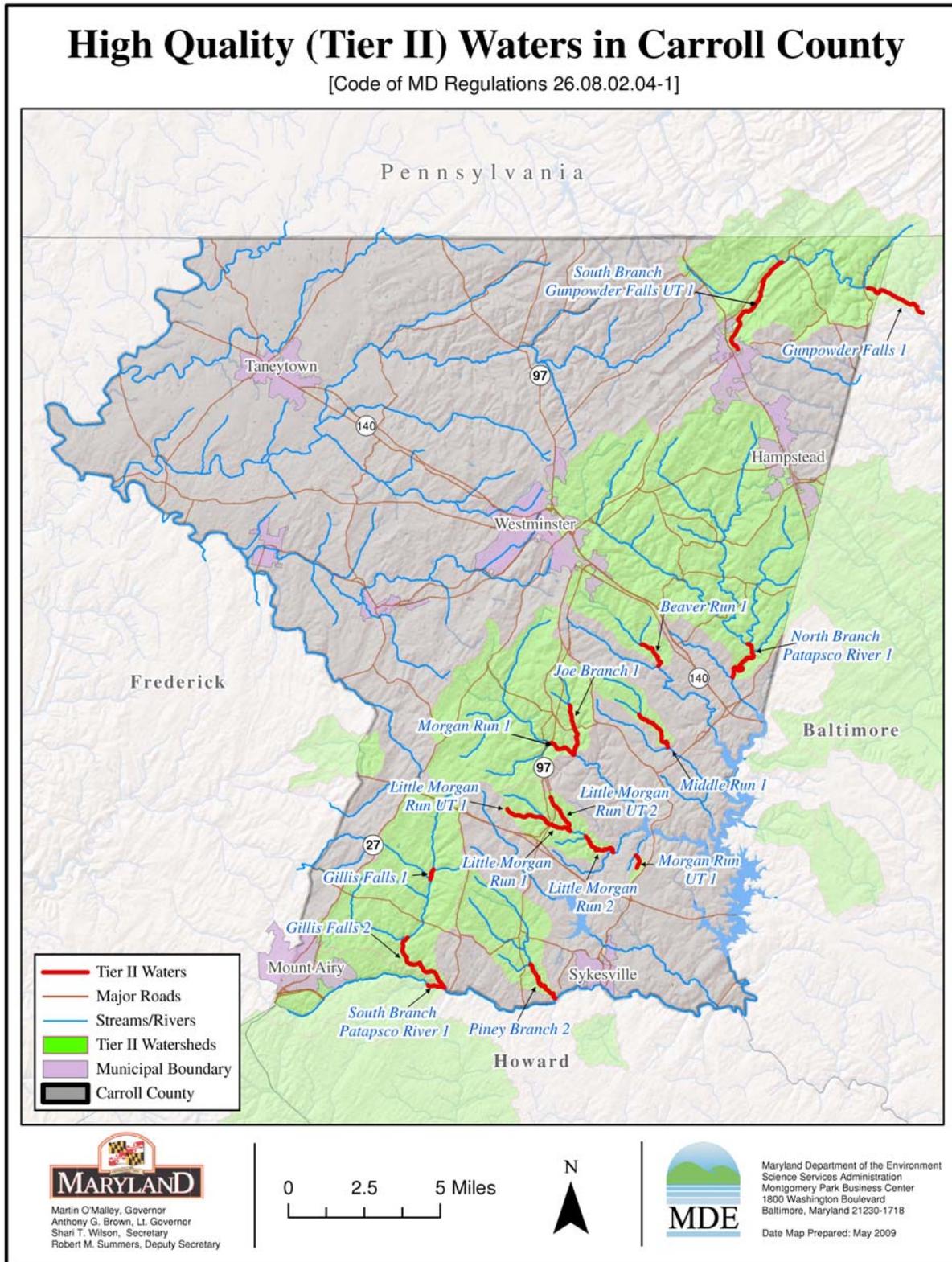
The utilization of surface water resources has likewise become costly and complicated. Approval for stream withdrawals currently requires additional storage capacity within a water supply system. Therefore, using streams as a water source is typically difficult, expensive, and often not a viable option.

Tier II Waters

"Tier II Waters" relate to Maryland's Antidegradation Policy (COMAR 26.08.02.04, COMAR 26.08.02.04-1, and COMAR 26.08.02.04-2), which follows the national model required by the US EPA. Tier II protects surface water that exceeds the minimum requirements specified by water quality standards. All of Maryland's current Tier II waters were designated on the basis of biological indices of integrity. The MDE map titled "High Quality (Tier II Waters) in

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Carroll County” shows the locations of the segments and their catchment areas (watersheds) that are located in part or in whole in Carroll County.



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As of 2009, stream segments shown in the table titled “Tier II Segments and Catchment Areas” were listed for classification as Tier II streams. See the table for specific segment names and listing dates.

The designation of Tier II waters affects the ability to obtain permits for regulated activities within those watersheds, such as discharge and appropriation permits for new water supply wells. The Antidegradation policy requires “an applicant for proposed amendments to county plans [Water and Sewerage Master Plan] or discharge permits for discharge to Tier II waters that will result in a new, or an increased, permitted annual discharge of pollutants and a potential impact to water

quality, shall evaluate alternatives to eliminate or reduce discharges or impacts. If impacts are unavoidable, an applicant shall prepare and document a social and economic justification. The Department shall determine, through a public process, whether these discharges can be justified.” (Source: MDE website, <http://www.mde.state.md.us/ResearchCenter/Data/waterQualityStandards/Antidegradation/index.asp>)

A jurisdiction must provide a social and economic justification to MDE for permitting limited degradation of the water quality if a reasonable alternatives analysis indicates that an impact cannot be avoided or no assimilative capacity remains.

Stormwater Management Act of 2007

Also passed in Maryland in 2007 was the Stormwater Management Act of 2007 (SB 784/HB 786). Stormwater runoff is a major cause of stream erosion and Bay overnutrification and, in Carroll County, water quality impairment and stream ecosystem disruption. The Act requires stormwater management practices to mimic natural water runoff and minimize land development impact on water resources via the use of low-impact development (LID) methods. The stricter standards reduce pollution runoff to receiving water bodies from impervious surfaces such as pavement, roofs, and structures.

The Act’s impact on Carroll County will most likely be minimal. The County and most of its municipalities have already adopted ordinances which mimic the State’s model ordinance to a great extent. The use of non-structural practices as a requirement, greater use of infiltration practices and natural attenuation and increased management on redevelopment projects have been in place since 2004.

Tier II Segments and Catchment Areas

Segments and Catchment Areas	Date Listed
Gillis Falls 2	2003
Little Morgan Run UT 1	2003
Beaver Run 1	2007
Gillis Falls 1	2007
Gunpowder Falls 1& UT 1	2007
Joe Branch 1	2007
Little Morgan Run 1& UT 2	2007
Morgan Run 1	2007
Morgan Run UT 1	2007
N Branch Patapsco River 1	2007
Peggy’s Run 1	2007
S Branch Patapsco River 1	2007
Weldon Creek 1	2007
Western Run 1	2007
Little Morgan Run 2	2008
Middle Run 1	2008
Piney Branch 2	2009

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The County will be receiving, editing, and proposing amendments to its Stormwater Management Code in order to fully comply with the requirements of the new State Stormwater Management Law. County staff will then work with the municipalities to ensure continued delegation of the County Code or modifications to municipal codes for compliance. Carroll County will continue its efforts to implement state-leading stormwater management practices as identified through the Builders for the Bay process.

7 Review of Local Regulations & Protections

The County and its municipalities have a unique relationship regarding the development and implementation of regulations and protection measures.

The relationship is founded in a formal Town/County Agreement, which establishes the roles and responsibilities of each party. The agreements, while similar, are customized for each municipality. The implementation of State and local laws are then established between the County and municipalities by ordinance. The agreement allows for a cooperative environment under which coordinated, efficient implementation of regulations and protection measures can take place. In most cases, the County provides staff and other resources to manage, implement, and enforce measures needed to ensure compliance with applicable regulations and protection measures.

The regulations which provide for the protection and management of natural resources and the role assumed by the County and municipalities can be seen in the table titled “Review, Inspection, and Bonding: Assignment of Responsibilities.” This table identifies the entity responsible for the key steps in the implementation of resource management. This arrangement between the County and its municipalities for the most part allows for consistent and uniform application of resource management regulations.

The Water Resource Management Ordinance was an unmandated action adopted by the Board of County Commissioners in 2004 to enhance the protection of water quality and quantity in Carroll County. This ordinance is one of the few of its kind in the State of Maryland. Even though not all of the municipalities have formally adopted the ordinance, reviews of development plans are still performed by County staff and comments / recommendations are forwarded.

In addition, the County and municipalities, along with the local Health Department, created the Carroll County Water Resource Coordination Council (WRCC). This group was formed in 2007 by a joint resolution signed by all parties. The WRCC meets monthly to discuss and address water resource management issues of mutual interest. The group has been overseeing the consultant work and drafting of this joint WRE effort.

In addition to the resource management regulations found in the “Review, Inspection, and Bonding: Assignment of Responsibilities” table, the County and each municipality also have Adequate Public Facilities laws in place. This table indicates activities and responsibilities associated with a proposed development – subdivision or site plan – and which jurisdiction implements those items.

Water Resources Element

The Carroll County Adequate Public Facilities and Concurrency Management Ordinance ensures that proposed or planned residential growth proceeds at a rate that will not unduly strain public facilities, including schools, roads, water and sewer facilities, and police, fire, and emergency medical services. Minimum adequacy standards, or thresholds, are established for these facilities and services and mandate that the cumulative impacts of proposed or planned residential growth, within the municipalities and the County, be considered in testing for adequacy under these standards.

Chapter 71 of the Carroll County Code of Public Local Laws includes thresholds for adequacy, approaching inadequacy, and inadequacy for each facility or service. When the Department of Planning determines that a preliminary plan may be presented to the Planning Commission, the Department tests all facilities and services that will be impacted by the proposed development. If all public facilities and services are adequate during the six-year CIP cycle, the Commission may approve the plan to proceed to the final plan stage and issue a recordation schedule and building permit reservations.

If a public facility or service is approaching inadequate during the six-year CIP or if a public facility or service is inadequate and a relief facility is planned in the six-year CIP to address the inadequacy, the Commission may conditionally approve the preliminary plan to proceed to the final plan stage and issue a tentative recordation schedule and tentative building permit reservations, subject to modification at final plan stage.

When the Department of Planning determines that the final plan may be presented to the Planning Commission, any public facility or service that was approaching inadequate or inadequate at the preliminary stage is retested. If a given facility or service continues to be approaching inadequate or inadequate and a relief facility is planned in the six-year CIP, the Planning Commission can place the project in a queue or subject the project to a phasing plan for recordation. For inadequate facilities and services, no residential plat may be recorded or final residential site plan approved until a relief facility planned to address the inadequacy has construction underway and completion is anticipated within six months.

If a public facility or service is inadequate during the six-year CIP at the preliminary plan stage and no relief facility is planned in the six-year CIP that addresses the inadequacy, the plan will be denied by the Commission. At the request of the developer, the plan may be placed in a queue and retested on an annual basis. A developer may propose mitigation to alleviate the inadequacy. The Board of County Commissioners determines whether or not mitigation is acceptable.

When a facility or service is inadequate, the Board of County Commissioners can adopt restrictions on the issuance of building permits. These restrictions can be placed on specific geographic areas based on the area served by the inadequate facility or service.

Please refer to the table, “Water and Sewer Facility Minimum Adequacy Standards,” for thresholds for public water and sewer facilities.

Water and Sewer Facility Minimum Adequacy Standards

Water Resources Element

Adequate	Approaching Inadequate	Inadequate
Water: The 'maximum day demand' is less than 85 percent of the total system production capacity.	Water: The projected maximum day demand is equal to or greater than 85 percent but less than 95 percent of the total system production capacity.	Water: The projected maximum day demand is equal to or greater than 95 percent of the total system production capacity.
Sewer: The projected annual average daily flow is less than 85 percent of the wastewater treatment facility permitted capacity.	Sewer: The projected annual average daily flow is greater than or equal to 85 percent but less than 95 percent of the wastewater treatment facility permitted capacity.	Sewer: The projected annual average daily flow is greater than or equal to 95 percent of the wastewater treatment facility permitted capacity.

Each of the municipalities has also adopted an Adequate Public Facilities Ordinance. Many of them use the same or similar standards to those adopted by the County.

Water Resources Element

Review, Inspection, and Bonding: Assignment of Responsibilities

Resource Management Ordinance and Activity	Hampstead	Manchester	Mount Airy	New Windsor	Sykesville	Taneytown	Union Bridge	Westminster
Floodplain								
Review*	C/C	C/C	C/C	C/C	C/C	N/A	M/C	C/M
Bond	N/A	N/A	N/A	N/A	N/A	N/A	M/C	N/A
Inspection	C	C	C	C	C	N/A	M/C	C
Easement	C	C	C	C	C	N/A	M/C	M
Grading								
Review*	C/C	C/C	C/C	C/C	C/C	C/C	C/C	C/C
Bond	N/A	N/A	N/A	N/A	N/A	N/A	C/C	N/A
Inspection	C	C	C	C	C	C	C/C	C
Sediment Control								
Review*	SCD/S	SCD/S	SCD/S	SCD/S	SCD/S	SCD/S	SCD/S	SCD/S
Bond	C	C	M	C	M	M	M	C
Inspection	C	C	C	C	M/C	C	C	C
Stormwater Management								
Review*	C/C	C/C	C/C	C/C	C/C	M	M	C/M
Bond	C	C	M	M/C	M	M	M	M
Inspection	C	C	C	M/C	M/C	M	M	C
Easement	C	M	M	M	M	M	M	M
Landscape								
Review*	C	C/C	C/M	?	C/M	C/C	M/C	M
Bond	C	C	M	C	M	C	M/C	M
Inspection	C	C	M	C	M	C	M/C	M
Forest Conservation								
Review*	C/C	C/C	C/C	C/C	C/C	C/C	C/C	C/C
Bond	C	C	C	C	C	C	C	C
Inspection	C	C	C	C	C	C	C	C
Easement	C	C	C	C	C	C	C	C
Water Resources								
Review*	C/No Code	C/C	C/C	C/C	C/C	C/ No Code	M/C	CO/ No Code
Bond	N/A	N/A	N/A	N/A	N/A	N/A	M/C	N/A
Inspection	N/A	C	N/A	C	C	N/A	M/C	N/A
Easement	N/A	C	M	C	C	N/A	M/C	N/A
Environmental Site Delineation (ESD)								
Review*	N	Y	Y	Y	N	N	Y	N

Key: C = County M = Municipality S = State SCD = Carroll Soil Conservation District

* Review performed by / whose code

Source: Carroll County Bureau of Resource Management, November 14, 2008